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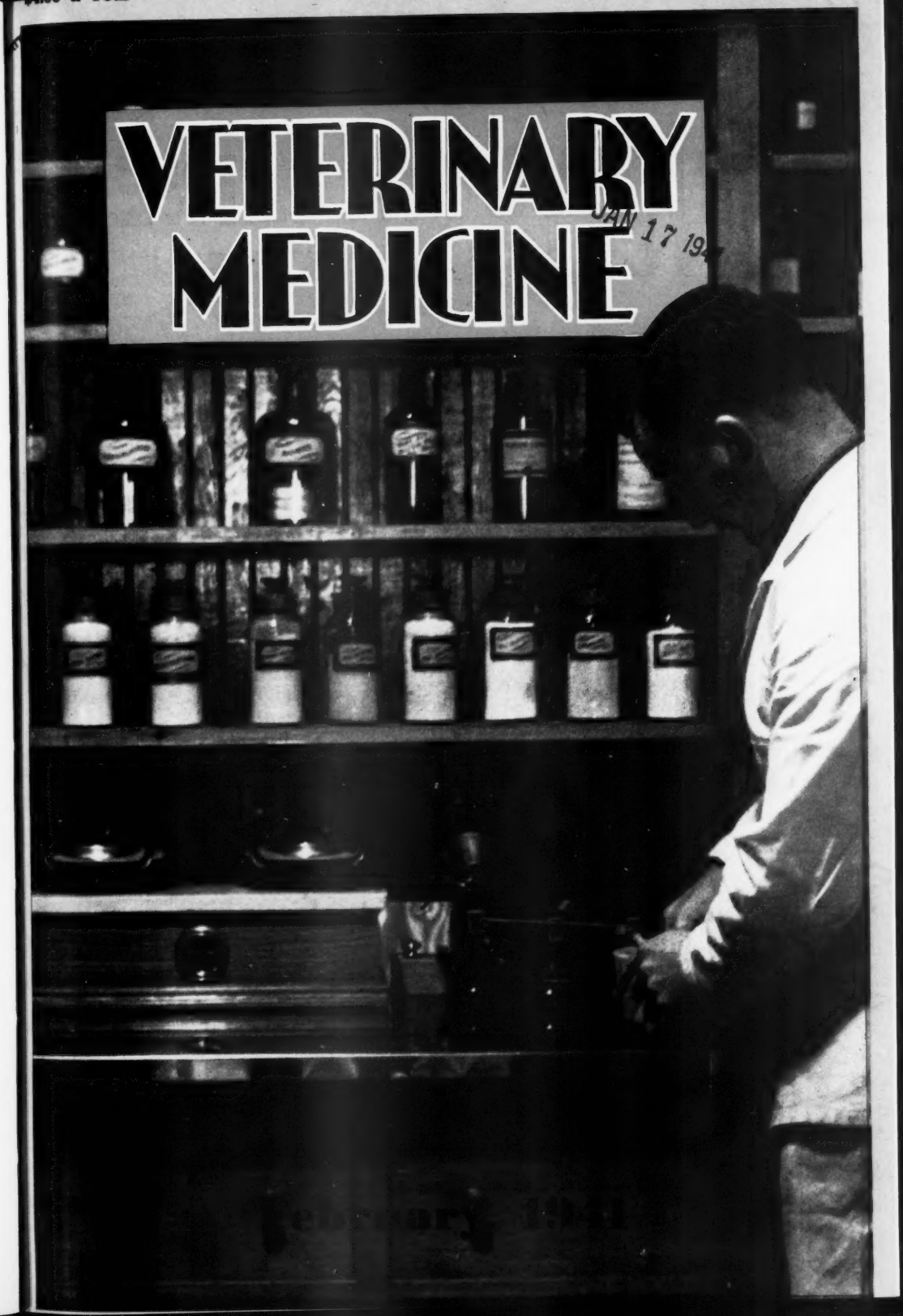

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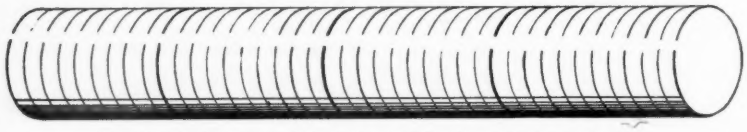

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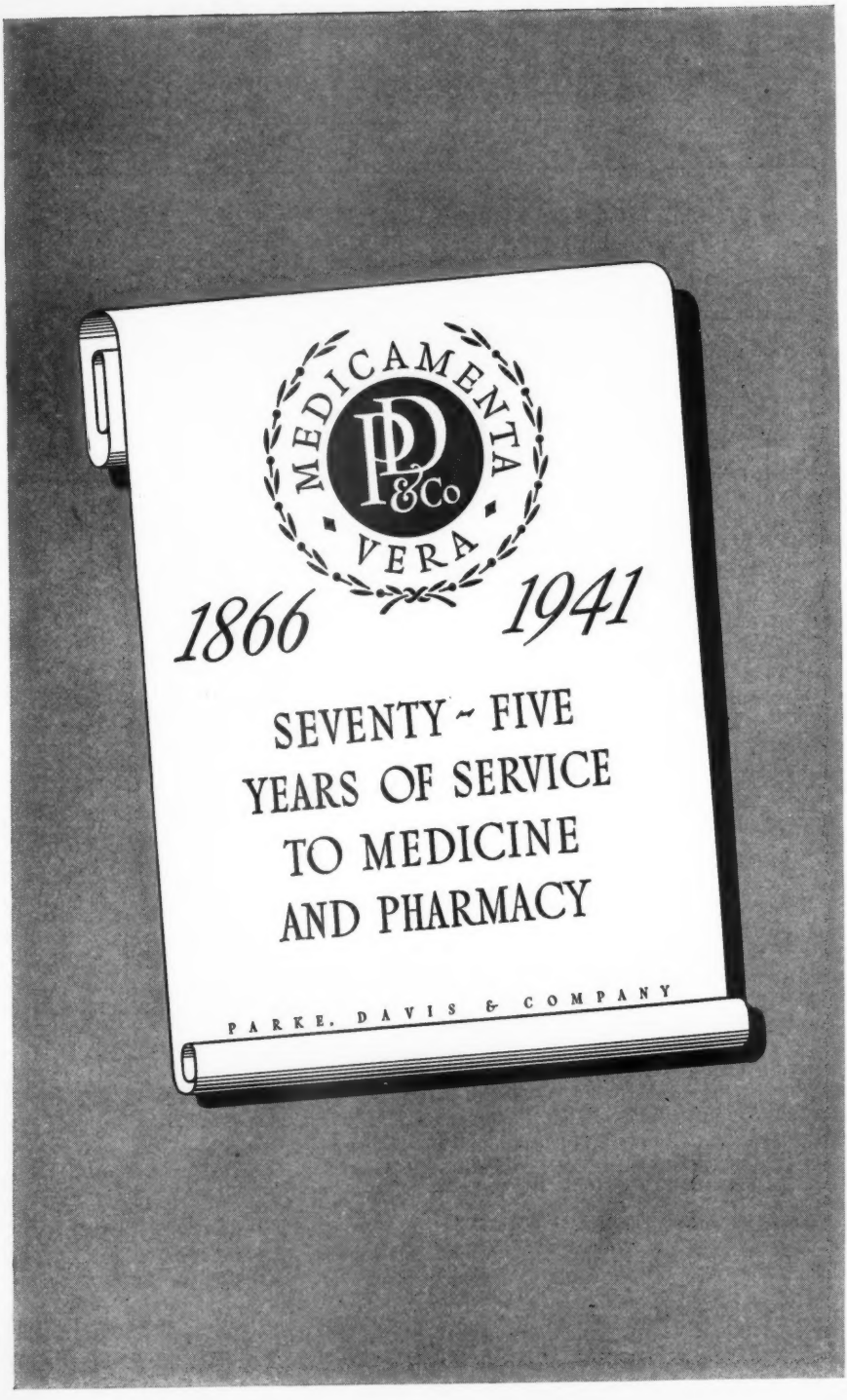
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VETERINARY MEDICINE

Registered in U. S. Patent Office

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THE FRONT COVER

The illustration on the front cover this month shows a section of the pharmacy in the Veterinary Hospital at Ft. Riley, Kansas, and an enlisted man of the Veterinary Service. There are six veterinary officers of the Regular Army at Ft. Riley, and eight Veterinary Reserve officers. Col. Jacob E. Behny is in charge of the Veterinary Service at the post.

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In 1936, 672,326 sheep were shipped out of New Mexico, 141,000 lambs went into New Mexico feedlots, and 2,145,000 breeding animals were left on the ranges.

Hydrocyanic acid, in concentrations sufficient to be dangerous to live stock, has been found recently in the wild California almond, two western species of wild flax, a southwestern star thistle, the eastern manna and arrow grass (a marsh plant).

Common methods of pasturing and the habits of horses are particularly favorable to serious strongyle infestation. Parasite attacks lead to weakness and poor condition and waste of feed, and may disable or kill horses and mules if the damage is not checked. Timely medicinal treatment is a desirable aid.—*Benj. Schwartz.*

Dr. C. D. Lee of the Iowa State College found that when the hens were affected with iritis ("gray eye"), 70% of the chicks died from some form of range paralysis; when the cocks were affected, 15% died; and when both dams and sires were affected, 80% of the chicks died of this disease before they reached the age of 14 months.

Dr. W. H. Feldman and associates of the Mayo Foundaiton had encouraging results from the use of promin (P. D. & Co.), a drug of the sulfanilamide group, in the treatment of tuberculosis in experimentally infected guinea pigs. The treated cavies lived twice as long as the controls (164 as compared with 82 days). The investigators state that the severity of the disease in the treated animals was markedly less than in the untreated controls.

During the World War period of 1914-1918, more than 60 million men were mobilized in 16 belligerent nations. About 20 million lives were extinguished as a direct or indirect result of that struggle.—*Hygeia*

American ice cream consumption has increased 83% in the last eight years. In 1932 the average per caput consumption of commercial ice cream was 5.04 quarts. Last year it was 9.21 quarts.

Mastitis is very prevalent among brood sows in parts of Iowa. Pigs that suckle sows so affected commonly die, at about three weeks of age, of pyemic arthritis. That is, provided they haven't already starved to death.

The average woman believes a steer is mostly rib roasts, loin and round steaks; that a hog is mostly center cut pork chops, center cut slices of ham, spareribs and bacon; and that a lamb is mostly rib and loin chops and legs. At least she orders meat as if that encompassed her knowledge of anatomy.

Boneless cuts of meat are becoming more and more popular, with customers of the neighborhood meat market. Among the advantages: they are easier to carve, more compact, take up less room and their use simplifies meat buying, especially for the small family.

Answering the question as to how many different cuts of meat are available, National Live Stock and Meat Board specialists say the housewife could serve a different meat dish every day for four months and still not exhaust the possibilities, so numerous are the cuts available at the uptodate meat market.

Young Animals Lack Vitamin D

Many animals are often closely housed, so that they do not receive adequate exposure to sunlight. This is especially true of young growing animals. While good quality, sun-cured hay is a good source of vitamin D, such hay is not always available. Moreover, in the case of pigs, it is not the general practice to supply such roughage during the winter, and young calves usually consume but little hay. As a result, rickets in pigs and calves is a problem encountered in many sections, and there is reason to believe that other animals may not be supplied with optimal amounts of vitamin D. This need can be met by the inclusion of protective amounts of vitamin D in commercial feeds and supplements.

Too Many Live Stock Markets

In June, 1930, there were 73 live stock markets posted under the Packers and Stockyards Act. In June, 1940, there were 199 such markets. In addition, there were more than 1000 where the P. & S. has no supervisors. There is much hue and cry that producers are being cheated in weights and grading at these unsupervised markets, and the evidence supports the charge. The producers, however, overlook a factor at these markets which is costing them more than low grades and short weights. At the federally supervised markets veterinarians with plenary authority are on duty to prevent animals that pass through them from carrying disease to the farms and feedlots. Most of the unsupervised markets sell contagion as readily as animals.

According to H. H. Hulbert of the Farm Credit Administration, neither farmers nor their cooperative associations have taken the lead in effecting these changes in the system of live stock marketing. The multitudinous live stock markets have been established by men who thought they could see a wider margin of profit for themselves by so doing.

An appreciation of this fact might stiffen the backbones of some regulatory officials. The closing of pest holes for sanitary reasons will be applauded by the majority of live stock producers.

Animal Disease Limits Export Markets

Frank W. Harding, former Secretary of the Shorthorn Breeders Association and Otto V. Battles, an American breeder of Angus cattle, U. S. guest judges at the International Live Stock Show at Palermo, Argentine, gave interviews to the South American press that should cause the live stock breeders and the governments of South American republics to ponder the cost of animal disease and the advantages of a clean bill of health for animals. Both men gave the determination of the U. S. live stock industry to avoid the tax of foot-and-mouth disease as a reason for the quarantine against Argentine beef. Commenting on the interviews, the Argentine live stock press suggested the adoption of U. S. methods for dealing with foot-and-mouth disease and cattle ticks.

Sanitary Sawdust Floors

There is no workable plan by which effective sanitation can be maintained in farm buildings with dirt floors. Concrete floors, most desirable from the viewpoint of sanitation, are open to the serious objection of being cold in winter, and, unless heavily bedded, not only do they contribute to respiratory disease, but many animals, particularly among horses, will not lie on them and thus miss needed rest. Research at the University of Minnesota has shown that most of the objections of concrete can be overcome by using sawdust in the mix instead of sand and gravel. Concrete so made is light, has good nail-holding properties, is resistant to freezing, fire and termites, and is good insulating material. Where great strength or weathering resistance is not required, it may be the answer to poultry house, hog house and dairy barn flooring problems, and it may be used for walls too if painted with a waterproof covering.

In the experiments referred to, sawdust from aspen, spruce, Norway pine and jack pine made the best concrete. Sawdust from fir, oak, birch, cottonwood, maple and cedar will not do according to the Minnesota authorities.

VETERINARY FACULTY, ONTARIO VETERINARY COLLEGE

Front Row: F. W. Schofield, L. Stevenson, C. D. McGilvray, W. J. R. Fowler, R. A. McIntosh. Back Row: V. R. Brown, J. S. Glover, W. G. Stevenson, A. F. Bain, H. E. Batt, G. Cairns, F. J. Cote, R. T. Ingle.

A reasonable maintenance allowance for a dog is 80 calories per kilogram per day. Thus the daily ration of an adult dog weighing 25 lbs. should contain 900 calories.

✓ ✓ ✓ ✓

When one recalls the state of our knowledge 25 or more years ago, one must be forcibly struck with the progress concerning our understanding of disease and its prevention. It must be gratifying to us as a profession to realize that much of the progress has been the result of the work of our own veterinary colleagues or of the application to animals of the results of study of members of allied branches of science, by ourselves. The broadening of the basal scientific training of our students has been productive of the finest results. It has resulted in the acquiring of a deeper fundamental knowledge of physiological processes generally and of the methods to be undertaken in the inquiry into a disease problem, of an appreciation of the meaning of many of the more academic types of research and methods of application of findings of general scientific research to the more particular problems of animal health and disease.—*T. Dalling*, in *The Veterinary Record*.

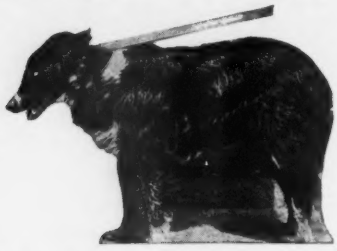
A powder resembling powdered milk but with the vital properties of red blood is the new life-saving aid U. S. Army surgeons hope to have the next time American soldiers go into battle. Supplies of this powder, made from blood plasma, will, if it comes up to expectations, replace blood banks for blood transfusions in both military and civil practice.—*Sci. News Letter*.

✓ ✓ ✓ ✓

The questions of health and disease are so closely bound together that we can never afford to neglect the one or the other in our daily routine. It is equally true, of course, that those who study animal husbandry and attempt to devise new and more economical methods of feeding, housing, etc., for live stock should never make deductions from their observations unless they are assured that their lines of treatment have not led to a deviation from the "health" of the animals concerned: this can be ascertained only by conjoint work with members of our own profession whose experience and keen powers of observation can detect whether or not freedom from "disease" has been maintained.—*T. Dalling*, in *Vet. Record*.

Anti-Rabies Vaccination

Judiciously employed, the single-injection method of vaccination against rabies is an effective aid in curbing the spread of the disease. This method consists of the subcutaneous injection of 5cc of a 20% emul-



sion made from the phenol- or chloroform-treated brain of a rabid sheep.

Some dog owners are prejudiced against rabies vaccination, apparently because of a fear that it is not reliable or that the dog may experience a violent reaction. While it is true that the single-dose vaccination recommended for general use with animals is not 100% protective and does not confer the degree of immunity which multiple doses do, still veterinary literature contains so many reports of favorable results from it that there can be no doubt of its important immunizing value. Experiments conducted by the Detroit Department of Public Health have shown that the chances of developing rabies from a dog bite are 11.4 times as great if the dog has never been vaccinated as they would be if the dog had been vaccinated. Cases in which a dog experiences the slightest discomfort from vaccination against rabies are rare.

In many communities antirabic vaccination of all dogs is compulsory, but whether compulsory or not, all dog owners should be interested enough in the welfare of their pets and of their family and the general public to give them this security.

Since this method is not a complete protection against the disease, and since it involves expense, it should be used as a supplement to and not as a substitute for other recognized methods of control, such as the quarantining of all dogs during the presence of the disease in a community and the destruction of all stray dogs.—*Cir.* 475, *Univ. of Ill.*

The hen is the most economical converter of raw material into human food. In this respect she is twice as efficient as the dairy cow.

* * * *

The incubation period of fixed virus is shorter and more constant than that of street virus. When, for example, rabies street virus is first inoculated into rabbits, the incubation period may be about 18 days. On repeated passage through rabbits the disease develops regularly in eight days. The virus is then said to be "fixed." Fixed virus is much less virulent for man, dogs and other animals than is street virus. In fact, when properly attenuated, fixed virus injected in suitable doses produces immunity against exposure to street virus.—*Cir.* 475, *Univ. of Ill.*

* * * *

Successful calf raising begins with the right feeding and care of the pregnant cow. Succulent pastures in the summer and clean, bright hay for stable feeding, supply nutrients and other particular needs of the cow during the dry period. The greatest growth of the unborn calf, with heaviest demands on the cow, takes place during the last few weeks before birth. Because of this, it is good practice to feed the dry cow liberally and especially to give her good quality hay or pasture. It is harder to raise calves from cows that have been poorly fed than from cows that have been well fed during the dry period.—*Cir.* 308, *Univ. of Wis.*

* * * *

Add This to the Cost of Farmer Management of Animal Disease

Because of Canada's contract to supply Britain with pork during the European war, the price of hogs in the Dominion is higher than in the United States. United States swine producers would like to ship to Canadian markets, but a 30-day quarantine at our northern border costs more than the difference in prices. Hog cholera is the reason for the quarantine. In Canada, hog cholera is handled as a veterinary problem and is practically nonexistent. In this country, where agriculture feels competent to handle it, it continues to cost swine raisers 25 million dollars a year.

Two Veterinarians Go to Wilson & Co.

Wilson and Co., meat packers, announce the appointment of R. F. Vermilya, D.V.M. and H. E. Kingman, Jr., D.V.M. to their Veterinary Staff. These gentlemen, along with A. A. Swaim, D.V.M., who has been with the firm for many years, will concern themselves with problems relating to production of healthy live stock and the scientific and practical inspection of meat.

Doctor Kingman was born at Ft. Collins, Colo., Sept. 4, 1911, and was graduated from the School of Veterinary Medicine, Colorado State College, with the Class of 1933. The year following graduation was spent in private practice in California. In 1934 he entered the Bureau of Animal Industry to assist in the eradication of tuberculosis in California. In 1936 six months leave was taken from the Bureau to study special problems associated with reproduction in cattle and artificial insemination. At the end of this period he returned to the B. A. I. force in California and was engaged in calfhood vaccination experimental work. In 1939 he was transferred to the Pathological Division of the Bureau and was stationed at the Branch Pathological Laboratory at Chicago, until he resigned to become a member of Wilson and Co. last September.

Doctor Vermilya was graduated from the Chicago Veterinary College in 1906. He immediately entered the service of the Bureau of Animal Industry at South St. Paul, Minn. During the early part of the World War he was assigned to meat inspection work at one of the Army Camps, and in 1917 enlisted in the Veterinary Reserve Corps, later seeing active service until his discharge in August, 1919. In 1924 he was detailed to assist in the eradication of foot-and-mouth disease in California. In the years that followed he was assigned to the duties of Inspector in Charge at Wheeling, West Virginia, Detroit, Michigan, and Boston, Mass. Resigning from the Bureau after more than 30 years' service he, just recently accepted a position with Wilson and Co.

Dr. Vermilya will assume many of the duties of the late Dr. R. F. Eagle. He will also work very closely with the research and operating departments in their program of advancement of scientific and practical meat inspection.

A testimonial dinner attended by over 200 officials and employees of various packing companies, Bureau men and others, was given to Doctor Vermilya before he left Boston for the West.

Student Ambitions

Thirty-eight of the 39 college and university students who took part in the intercollegiate meat judging contest at the 1940 International Live Stock Exposition at Chicago stated that they intend to engage in some phase of the live stock and meat industry as a life work. Thirty-five of the 39 were either raised or have lived on farms and 33 had had experience in fitting livestock for shows.

Of the 39, ten definitely stated that they had hoped to engage in farming or ranching, eight hoped to engage in the meat packing industry, while nine others said that they expected to get into some kind of live stock or meat work. Others interviewed hope to take up meat retailing, extension work, teaching, etc., and one hopes to go into the work of federal meat inspection.

Five New Dog Foods

Tioga Mills, manufacturers of animal feeds for more than thirty years, placed five new products on the market January 1st—tioga biscuits, medium kibbles, fine kibbles, canned dog food and canned beef ration. These are in addition to four foods—meal, pellets, puppy food and fobilac which the firm has heretofore supplied. The packages will vary in size from one-pound cans to 50-pound bags.

Correction

On page 62 of the January issue (last line of first column) the dosage of sulfapyridine for calves is given as one gram per pound. It should read one grain per day per pound of body weight. Suggestion:—Look up your January copy and change it *right now*.

Medical and Veterinary Supply Firm Celebrates 75th Anniversary

The year 1941 marks the Diamond Anniversary of the founding of Parke, Davis & Company, a firm which had its inception in a small drug store in the City of Detroit, Michigan, and which, during the past seventy-five years, has become the world's largest makers of pharmaceutical and biological products.

From the very beginning, back in 1866, Parke, Davis & Company has engaged in research work with the object of making available to allied medical professions preparations of the highest degree of accuracy.

In the early 70's, pharmaceutical progress meant the discovery of new vegetable drugs. Energetic — and extensive — explorations gave to the medical professional such valuable and widely used drugs as cascara and coca. Then, in 1879, came one of Parke-Davis's greatest contributions to pharmacy and medicine—the introduction of the first chemically standardized extract known to pharmacy. Desiccated thyroid gland, the first endocrine product supplied by the company, was introduced in 1893; one year later it established the first commercial biological laboratory in the United States. In 1897 it introduced the first physiologically assayed and standardized extracts. Throughout these early years, the fundamental policy of precision in pharmaceutical manufacture was crystallizing.

Since the turn of the century an aggressive program of research has been pursued zealously, marked by the introduction of such important medicinal products as adrenalin, ventriculin, theelin, pitocin, pitressin, mapharsen, neo-silvol, antuitrin-S, meningococcus antitoxin, dilantin sodium, and many others. Diversified research activities cover the major phases of medical treatment — including the endocrine, biological, vitamin, and chemotherapeutic. New discoveries are carefully evaluated through extensive facilities for clinical investigation.

The company's home offices and research and manufacturing laboratories in Detroit occupy six city blocks on the Riverfront.

A 700-acre farm near Rochester, Michigan, about 30 miles from Detroit, is utilized for the production of antitoxins, serums and vaccines, and for the cultivation of medicinal plants.

In addition to its Detroit headquarters, branches and depots are maintained in important cities throughout the country, including Atlanta, Baltimore, Boston, Buffalo, Chicago, Cincinnati, Dallas, Denver, Indianapolis, Kansas City, Minneapolis, New Orleans, New York, Philadelphia, Pittsburgh, San Francisco, St. Louis, and Seattle.

In the foreign field, to care for the Parke-Davis business which extends to every quarter of the globe, branches are located in London, England; Sydney, N.S.W.; Walkerville, Ontario; Montreal, Quebec; Toronto, Ontario; Winnipeg, Manitoba; Bombay, India; Havana, Cuba; Buenos Aires, Argentina; Rio de Janeiro, Brazil; and Mexico City, Mexico.

Through the use of full-pages in leading national magazines Parke, Davis & Company are carrying on an advertising program that has attracted wide attention. As might be expected, their advertising is unique, ethical, distinctive. They make no direct attempt to sell their products to the public by means of this publicity. In a sincere effort to render a valuable service to the medical profession, they are running a striking series of messages based on the "See Your Doctor" theme, and physicians throughout the country are constantly experiencing evidences of the results of this broad educational program.

* * * *

Truth in Fabrics Bill Becomes a Law

When President Roosevelt signed H. R. 944 (S. 162), live stock producers, cooperatives and farm organizations won a battle that they began in 1902. Wool growers have been great sufferers from many kinds of fabrics sold as "all wool" and together with such support as they could enlist have, continuously for 38 years, urged upon Congress the passage of a law to make this type of misrepresentation illegal. Specifically, the law provides for truthful labels on fabrics containing wool. It goes into effect July 15, 1941.

South Dakota Veterinarians Appreciate Serum Producers' Educational Program

The South Dakota Veterinary Medical Association at its annual meeting in December adopted the following resolution:

Whereas, the Associated Serum Producers through the American Foundation for Animal Health, have literally poured veterinary publicity into South Dakota over the radio and farm journals, and newspapers, and

Whereas, this campaign has curtailed live stock losses by stimulating earlier and more prompt use of qualified veterinary service, and

Whereas, the character of this publicity campaign has reflected immeasurable credit upon the veterinary profession and has not only helped put the veterinary practitioner in his rightful place in the sun but has elevated the veterinary practitioner in the opinion of both city and rural resident.

Therefore, be it resolved that the South Dakota Veterinary Medical Association extend its expression of thanks and appreciation to the American Foundation for Animal Health and its sponsors.

* * * *

California Meat Inspection

There are 434 meat packing or processing establishments, large and small, operating under state or state-approved meat inspection. This inspection is conducted in 115 cities located in 40 counties.

Approximately 97% of the meat and meat food products consumed in California is produced under federal, state, or state-approved municipal meat inspection. The remaining 3% is exempt from inspection by law, as mandatory inspection is not required in counties of less than 27,000 population.

The problem of protecting the wholesomeness of California's huge meat supply differs from that of most states. While approximately 65% of all the meat in the United States is subject to federal meat inspection, the situation is reversed in California because a relatively small volume of meat is shipped out of our state.

To provide California's consumers with the same safeguards and protection enjoyed by consumers throughout the nation, it became necessary for the state of California to inaugurate a system of meat inspection to supplement the one operated by the federal government.—*W. B. Parker,* (California) Director of Agriculture.

Dr. J. L. Axby, State Veterinarian of Indiana, newly elected member of the Executive Board of the A.V.M.A. from the Third District — Indiana, Illinois and Wisconsin

Horse and Horseman of 1940

For Horse of the Year *Country Life* nominates Sir Gallahad 3rd, and for Horseman, Alfred Gwynne Vanderbilt.

Sir Gallahad (whose name is misspelled because his breeder wrote it that way and couldn't see any reason for spending the few dollars involved to correct it) won a number of races in France as a two-, three- and four-year-old, and went into the stud at five. In the fall of 1925 he was brought to America, the purchase price being $125,000, and went into the stud of Mr. Arthur B. Hancock, Paris, Ky., where he has stood for 15 years at a fee of $1,500. Sir Gallahad's selection for Horse of the Year is in recognition of the remarkable list of winners he has sired, including Gallant Fox. By 1930 he was the leading American sire, his get winning $422,200 that year. He repeated in 1933 and 1934 and again in 1940. His colts have sold for more than a million dollars at public auction, although many of the best have never been offered for sale. At 20 years of age Sir Gallahad is still vigorous, and several additional productive years are expected of him.

Mr. Vanderbilt is chosen Horseman of the Year for his support of racing and breeding, for the success of the season at Pimlico and Belmont, of both of which clubs he is president, and for the successful management of his own stable.

* * * *

Experiments indicate that lack of common salt in their diet is sometimes a cause of cannibalism in game birds.

Midwest Small Animal Clinic

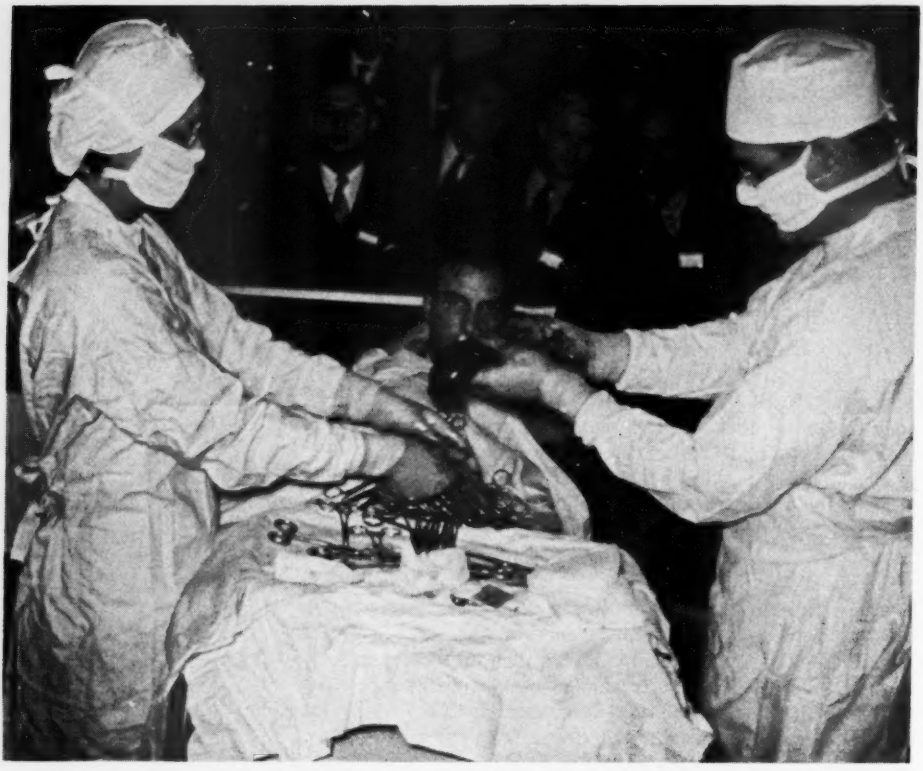
THE VIEWS on this and the two pages that follow are from the fourth annual clinic of the Midwest Small Animal Association. This association, organized only three years ago as a district association, is already the largest organized group of small animal practitioners, either local or national. Their clinics in November and midyear literary programs in March have all been well attended, and this one, held November 7, 1940, was the best attended of all. Considering that there is no city of as much as 200,000 population in the territory primarily included in this association, its growth is remarkable. Although not included in its territory, it attracts attendance from Chicago, St. Louis and Omaha. Its success is an indication of the keen interest of the general practitioner in pet animal practice.

W. M. Riser — Secretary and President of the Midwest Small Animal Association — C. L. McGinnis

■ The illustrations on this page show the technique for removing the anal sacs. The sacs are first emptied and then packed with cotton. The packing is introduced with a nasal cotton applicator, through the meati in the walls of the rectum. The last of the

packing inserted may be first dipped in tincture of iodine and then squeezed moderately dry. The swelling that results tends to close the rectal opening from the gland. When packed the sac is removed through incisions lateral to the anus in the manner shown in the second illustration. The third illustration shows Dr. A. R. Theobald, Cincinnati, holding the sac with forceps and dissecting it from the surrounding connective tissue. Great care must be used to avoid puncturing the rectal wall. The animal should be anesthetized for this operation and rest on the sternum with the rear elevated. The whole perineal area should be shaved and disinfected. The rectum and lower colon should be emptied and it is a convenience to plug the colon with cotton wool to prevent seepage during the operation. Any infection that results is likely to be near the anal opening of the duct and to discharge into the rectum. It is unnecessary to suture the skin incision. This is a practical operation for which there is frequent need. Dogs suffer a great deal from occlusion of the ducts of the anal sacs. The condition is very painful and may lead to serious sequels. The pain occasioned by defecation causes the animal to defer the act and may result in severe constipation. The irritation causes the animal to bite at the root of the tail or slide on the buttocks and thus annoy the owner. If the dammed up secretion is not discharged into the rectum, either spontaneously or as a result of manipulation, an abscess will develop and may ultimately discharge externally at the side of the anus, leaving a fistula or recurring abscesses. These sacs are frequently responsible for an offensive odor in old dogs. Occlusion of the outlet of the anal pouches is prone to recur once it has been established, and the veterinarian should always give consideration to the removal of these sacs when called upon to treat occlusion of them, particularly if it is the third, fourth or fifth time it has happened. The removal of these thin-walled sacs without packing them is extremely difficult; when packed they may be freed from their surroundings and removed without injury to important structures provided care is observed, particularly in scraping the delicate muscle fibers from the surface of the sac. For this purpose a new No. 15 Bard-Parker blade is the most satisfactory.

■ The illustrations at the right show the technique of two ear operations as performed by Dr. A. C. Merrick, Brookfield, Ill. The first is for an ear that stands upright when it should drop at the point. A slender, spatula-like instrument with a chisel edge is inserted between the skin and cartilage near the margin of the ear at the place where the bend is desired. It is then pushed across the ear, separating the skin (on the inside of the concha) from the cartilage. The instrument



being only about one-eighth of an inch wide, it separates the skin and cartilage for not more than one-fourth of an inch right across the inner surface of the ear. The ear is then bent over a piece of wooden applicator or even a match and a narrow strip of adhesive tape wound around it, figure-of-eight fashion. The tape is removed after three or four days when healing will have occurred and the formation of connective tissue will have made the dropped condition permanent. The third illustration shows treatment of the opposite condition — a dropped ear that should stand erect. In this case the skin and cartilage are separated by introducing the instrument above the bend in the ear and pushing it down well below the bend, and three parallel channels instead of one are made. A small roll of bandage is then placed in the outer ear and the concha formed around it and held in place by adhesive tape for a few days. Connective tissue forming in the wound stiffens the ear and causes it to stand erect. Strict asepsis is essential to success in this operation as is also complete anesthesia.

■ The illustration on this page shows a cesarean section performed by Dr. Wayne H. Riser, Des Moines, assisted by Miss Mildred Radakovich, Director of Nursing, Simpson College, Indianola, Ia. The anesthetic used was ether. Dr. C. L. McGinnis, Peoria, Ill., is administering the ether and not, as he appears to be, sampling the fetus (one of 12) which Doctor Riser has just delivered. As performed, this operation was near bloodless; the reason will be apparent when the many hemostats used are noted.

Before the cesarean operation, Miss Radakovich discussed the sterilization of instruments, sponges, towels, cloths, gowns and gloves, and aseptic technique generally. The audience was very appreciative of this discussion (and demonstration) and evinced its interest by asking many questions.

School of Veterinary Medicine University of Pennsylvania

The School of Veterinary Medicine of the University of Pennsylvania, for the first time in the history of an American veterinary school, required two years of college work for admission at the beginning of the present school year. The faculty believes this will have a splendid effect on the future development of the veterinary profession. Despite this increase in requirements for admission there were over 100 qualified applicants from whom 50 men were selected for the freshman class.

An outstanding achievement of the past year at the Pennsylvania school was the raising of a fund of over $15,000 for the C. J. Marshall Memorial Library. Five thousand dollars of this came from a bequest made by the late Doctor Marshall and a contribution of $2,000 was received from one of his friends. Practically all of the remainder of the fund came from alumni of the school. As a result of this fund, plus money contributed by the University, a full-time librarian has been employed, something desired for many years. In addition, during the past year, the trustees of the University have alloted more than three times as much as formerly for the purchase of new books for the veterinary library.

An important adjunct to the research and teaching facilities of the veterinary school is a new and completely equipped laboratory established last year. This laboratory was used for experimental work on the diseases of wild animals and is now being used for research in periodic ophthalmia and for graduate work in pathology. Other additions to the facilities include an additional room for housing small animals and another for surgery.

A year ago a course in radiology, the first in a veterinary school in this country, was established and new equipment provided. During the year the Ladies' Committee of the Alumni Association provided an electric sterilizer for the large animal clinic, an electric washing machine and blankets for the small-animal wards and gastronomic instruments for the small animal clinic.

Research continued in the School of Animal Pathology among the projects being: investigation of swine influenza and investigation of mastitis with federal funds, investigation of periodic ophthalmia, supported by the American Thoroughbred Association, investigation of certain drugs in the treatment of mastitis with funds provided by E. R. Squibb and Sons and investigation of blood changes in certain diseases of horses supported by funds subscribed by private individuals.

The school needs two new endowments of two million dollars each. The help of the alumni in raising these funds is solicited.

* * * *

Nicotinic Acid Deficiency in Cats

Pellagra and other dietary-deficiency disease research being carried on by Dr. Tom D. Spies, University of Cincinnati, has been extended to provide benefits to the feline as well as the human family.

Dr. Spies and two associates describe in *Science* how typical symptoms of nutritional deficiency in cats are "relieved dramatically" following daily doses of the nicotinic acid. This is the first report on the role of nicotinic acid in the nutrition of cats. It has been shown already that nicotinic acid is essential for the health and well being of man, dogs, pigs, and monkeys.

Co-authors of the *Science* article with Dr. Spies are Dr. M. K. Heath, veterinarian of Birmingham, Ala., and Dr. J. W. MacQueen, superintendent of Hillman Hospital, Birmingham.

Each of six cats under observation had lost weight, refused food, appeared weak, sluggish, apathetic, and usually hung its head in characteristic "sick-cat" fashion. Other symptoms of physical disorder included a partly-ulcerated mouth, livid tongue tip, and drooling, with three to five degrees elevation of the temperature. "Within 48 hours following the administration of nicotinic acid, there was a return of appetite, subsidence of symptoms, disappearance of the oral lesions and the temperature became normal."

Citing a typical case history of a cat brought to the veterinarian's animal hospital with such symptoms, the report describes the two-day improvement and adds:

"By the third day the tongue had resumed its normal color and the cat appeared normal in every way. He drank milk and was able to eat canned food. He was dismissed from the hospital at this time and a daily oral dose of 30 milligrams of nicotinic acid was prescribed for the next four days. Daily doses administered by mouth during the first 48 hours' treatment ranged from 80 to 100 milligrams."

Live Stock Trucking in Relation to Disease*

In connection with both the marketing of live stock and the veterinary inspection of such animals shipped interstate, new problems have arisen, caused principally by the great increase in live stock marketing by motor-truck.

Normally about 20,000,000 cattle, 24,000,000 sheep, and 22,000,000 swine pass through the principal markets, in the course of a year, in interstate commerce. These animals are inspected for disease by trained employees of the Bureau of Animal Industry. Affected animals and those exposed to disease are treated under supervision and disposed of in a manner which prevents contagion from spreading to animals in other States. The origin of the diseased animals is determined and reported to the authorities of the State concerned. This phase of the work is highly important; frequently the first information received by a live stock sanitary official of an outbreak of disease in his state is furnished through the report of a Department employee at one of the central markets.

Certificates are issued covering the interstate shipment of animals free from disease and of those which have been properly treated. Cars, trucks, and other vehicles and premises which have contained diseased animals are subject to cleaning and disinfection, under supervision. These operations are conducted on a large scale.

The type of supervision described has been greatly complicated, however, with the advent of the motor truck as a principal live stock carrier. At a representative market, during June 1939, only about 16,000 cattle were received by rail as compared with 70,000 by truck. For sheep the corresponding figures, in round numbers, were 37,000 and 99,000; and for hogs, 2,000 and 25,000. Thus in all cases truck shipments were noticeably predominant. The mobility of the truck makes it possible to deliver diseased animals to the stockyards and depart before the infection is discovered. Moreover, the truck may be used again before it can be traced and disinfected, whereas the railroad stock car which has contained diseased animals can be easily traced and cleaned and disinfected, in nearly every instance, before being reloaded.

In the transportation of live stock, losses due to improper loading, feeding, watering, and yarding are largely avoidable, and one of the functions of the Department is to enforce the laws enacted to prevent such losses. The 28-hour law, when properly complied with, causes the animals to be unloaded for rest and proper feeding and watering at stated intervals. Handling live stock in conformity with the provisions of this law prevents much suffering and shrinkage, and the animals are delivered at their destination in the best condition possible. At the time this law was enacted motor trucks were not a factor in live stock transportation and, therefore, no provision was made for the proper handling of live stock shipped interstate by truck. However, reports have been received of long-haul truck shipments of animals which have been handled in an inhumane manner, and efforts are being made to have the present law amended so that it will cover truck as well as railroad shipments of live stock.

*Report of the U. S. Secretary of Agriculture for the year ending June 30, 1939.

Efficient Disease Disseminators

In 1937 there were 1,317 live stock auction markets in 37 states, but mostly in the Corn Belt. There are even more at the present time. It seems a conservative estimate to say that at a minimum these auctions are on the average responsible for 100 outbreaks apiece of disease among farm animals yearly. This figures the impressive total of 131,700 outbreaks. Assume an average of only a dozen animals affected per outbreak and the figure exceeds one and a half million.

The Veterinarian and the Architect

By GUSTAVE G. ABRAMS, New York City

VETERINARIANS, like other professional and business men, sometimes fail to appreciate that the architect's work is with buildings as distinctly as theirs is with animals or whatever their specialty, and that building plans comprise far more than a roll of blueprints. Blueprints are but the prescription; much goes or should go before them. The architect has a much greater service to perform than drawing blueprints.

The animal hospital is a specialized building and as such is deserving of specialized treatment. Yet, knowingly or otherwise, we very often miss the boat. As with the drugs the veterinarian uses, the architect's blueprints are a means to an end. Essentially they are his prescription for the solution of a particular problem, a problem consisting of hundreds of correlated lesser ones put together and resulting in a single logical solution. The thought given by the architect in his attempt to achieve a really modern, scientific animal hospital is therefore of prime importance.

Amongst some of the problems very often met, are elements concerning the doctor himself; his habits, his own peculiar methods or the type of practice he expects to engage in. Though these questions have nothing to do with actual construction they influence in a large measure the ultimate plan-design of the hospital. Consideration of this is by no means a strange task for the architect, but one that commands his attention if any degree of success is expected of him.

Along with this and of a purely architectural nature, is the selection of the most suitable building materials for both interior and exterior use and their cost and bearing on a set budget. Always with an eye for the professional appearance of the small animal hospital, this quality is definitely reflected in the careful selection of these materials and the methods of their assembly. The materials available today for such purposes are many and varied. In many cases they have been developed to reduce maintenance costs and at the same time retain the sanitary features which are so important in the modern hospital for man or animals.

For example, special lighting equipment for general and operating room purposes

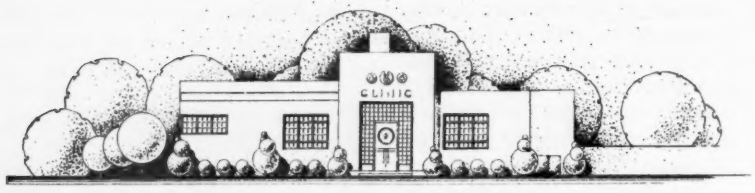
A small-town animal hospital, adequate but inexpensive to maintain. This compact little building was erected in 1935 at a cost of about $4,000 by Dr. H. S. Hansen, Ballston Spa, N. Y.

must be efficient and well planned. Present day air-conditioning facilities can be well adapted to the various needs of the animal hospital. Where such installations are not required it is often good practice to include at least a simple forced ventilation system, especially in the kennel rooms.

In the writer's experience it has been found that the veterinarian in suburban districts requires that his home be adjacent to or part of his hospital. To combine these two elements without suffering a loss of identity to either one is by no means an insurmountable barrier. Where possible this arrangement is desirable and should be attended by the many conveniences and economies which it suggests.

The architect, in his wish to gain favor with the veterinarian, must necessarily apply himself in many more directions than would appear to be evident in his blueprints alone, for the rewards he enjoys are not found in these blueprints but in the intelligent study and solution of a given problem. This is a source of mutual benefit for both architect and veterinarian.

Designs for a Small-Animal Hospital



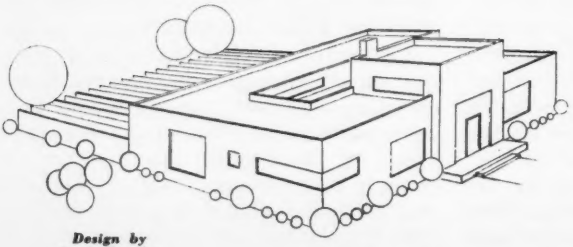
By SIDNEY W. LITTLE, Auburn, Alabama
Associate Professor Architecture

The School of Veterinary Medicine at the Alabama Polytechnic Institute has long felt that many existing small animal hospitals are inadequate to meet the special requirements for professional work in this field.

With that thought in mind the School of Architecture was asked to consider the problem of an ideal hospital for the practicing veterinarian. In writing the program the architectural faculty assumed a relatively level site of moderate frontage located in a suburban district or a small town. It was decided that the style of the building should be in the contemporary manner to conform to the modern trends of veterinary medicine. The actual needs of the doctor were carefully considered in the program as well as efficiency of administration with a limited staff. The Junior class in architectural design, under supervision of Professor Sidney W. Little, accepted the problem of designing a series of buildings each meeting those general requirements and the specific functions of typical small animal hospitals.

During the progress of the designing, Dr. James Green of the School of Veterinary Medicine met with the individual architectural students to discuss various technical problems that occur only in a veterinary establishment; for example, the isolation of mange and distemper patients in kennels as well as runs, or adequate circulation of air through the various units of the building. Since costs vary considerably from year to year and so widely in different sections of the country, no attempt was made to estimate the cost of the individual buildings. This very important factor was considered in the designing, however, and all areas were kept modest in size and well balanced one to another. Each solution is compatible with the income of any veterinarian whose practice warrants a private establishment accommodating 30 animals.

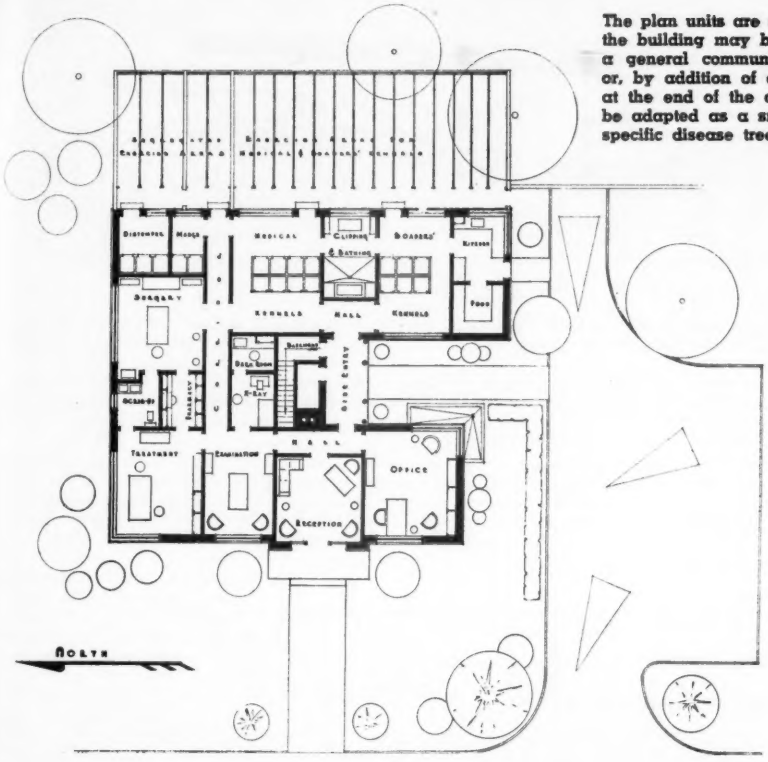
A sincere effort was made to evolve designs combining professional workability in



Design by L. C. Worthy

PERSPECTIVE OF MASS

Some of the advantages of this plan are in its compactness, easy accessibility from one type of interior area to another, and in the economical use of corridor arrangement. The separate units of the building are well related to one another from the standpoint of their particular uses.



The plan units are so arranged that the building may be converted into a general community clinic easily or, by addition of a bedroom wing at the end of the corridor, it might be adapted as a small hospital for specific disease treatment.

Two of the factors controlling the design of this building were circualtion and orientation. An effort was made to arrange the rooms and corridors in such a manner so as to provide logical handling of the animals as they are brought into the building, carried through their treatment period, and returned to their owners. In doing this the necessary handling of the animals while under treatment for long or short periods was kept in mind. A rear entrance is provided which is handy to both kennels and to treatment areas. The scrub-up and pharmacy are located conveniently between the surgery and treatment room.

The building should face to the west for best orientation in each unit. The kennels then receive east and west light. North light would be provided for the surgery and treatment rooms—as in the case of hospitals for human patients.

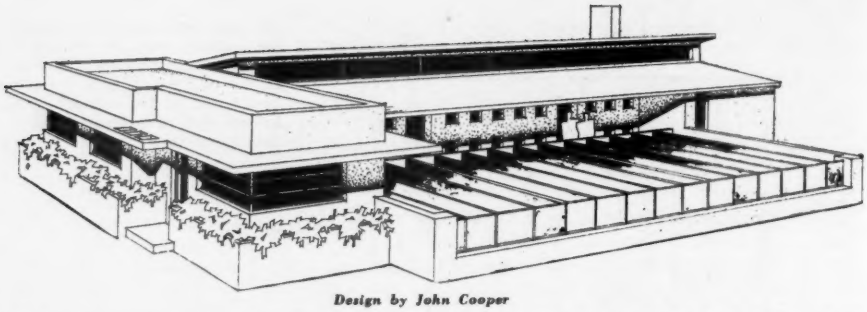
Construction cost would vary from $8,000 to $12,000, depending on different materials and equipment. The building is designed for construction in concrete, stucco on tile or brick or similar masonry material. It would have steel windows, linoleum floors, steam heat, fluorescent lighting, etc. It would require a level plot of ground which should have frontage of at least 150 feet.

plan with distinctive architecture on the exterior. The results were so successful that it was decided to reproduce them for their possible value to those contemplating the erection of a hospital. While it is true that each individual solution of this problem must lie in a careful analysis of the individual veterinarian's needs, it will be noted that the program from which these designs were made, properly considers every basic feature.

Program for a Small-Animal Hospital

In the past many small animal hospitals have been erected without due regard for the definite problems of the practitioner. There are comparatively few completely adequate hospitals in the country worthy of the title.

This project is the study of this modern problem with the view of presenting a group of ideal architectural solutions show-

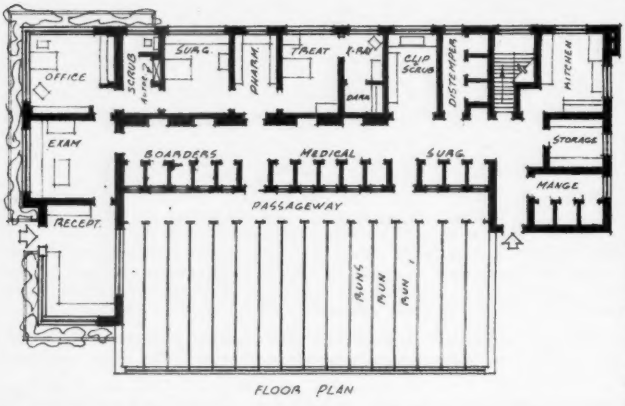


Design by John Cooper

This design is one answer to the needs of the veterinarian for a structure to enclose both office and clinic. It is not elaborate, in fact simplicity has been the keynote. It has, however, been designed for a maximum of efficiency.

Planned for a small lot in the Southern section of the country, the hospital is compact without sacrifice of adequate circulation. Attention was given to the separation of its various functions such as reception, treatment, animal boarding, and service. The cost of the unit should not exceed $10,000 and might best be placed on a relatively level lot about 125 by 200 feet.

Fire-resistant monolithic concrete construction is suggested throughout. Much of the exterior wall surface is devoted to window area. The extensive use of glass is equally as practicable in the North as in the South. A feature of lighting is the long clerestory window treatment in the corridor between clinic and kennels. The kennels are lighted by heat resistant glass on the outside walls. Kennel blocks for boarding animals are segregated from the kennel blocks for dogs under treatment. Room is allowed at the rear of the court for ambulance parking.



FLOOR PLAN

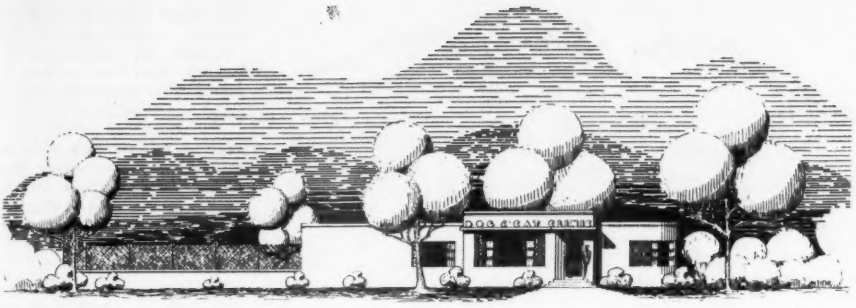
The court for animal runs has a southern exposure, thus gaining a maximum of sunlight—and by this orientation the long clerestory receives most satisfactory lighting. The clinic has a north exposure and so receives no direct sunlight, consequently no shadows to interfere with daylight operations and laboratory work. Special features include all built-in cabinet units, autoclave, etc., in the corridor. The office has built-in features for storage, etc.

With a few very minor changes the building could be altered for use as a kindergarten or a day nursery in the event that owing to changes in the neighborhood or for other reasons it might be undesirable to continue as an animal hospital.

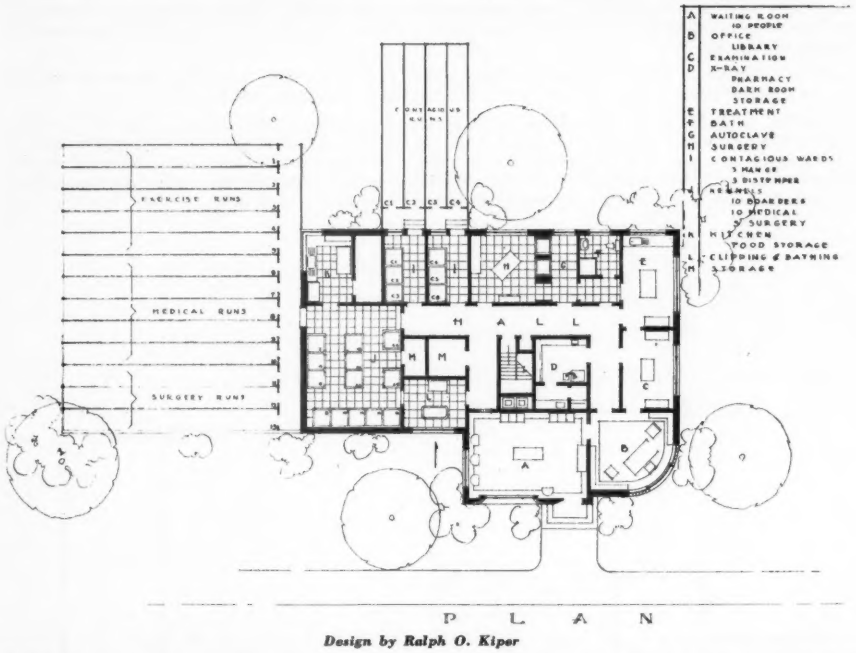
ing typical combinations of the three major divisions of their work—clinical, medical, and administrative.

These three divisions of such a hospital include:

1. Administrative
   Reception room and office with adjacent examination room. Space for a 500 volume library may be provided in office or examination room.
2. Medical Suite (Distinctly apart from the reception area and *not* having a front exposure)
   - A. Pharmacy
   - B. X-Ray room (small dark-room adjacent)
   - C. Treatment room
   - D. Surgery room
   - E. Autoclave and scrub-up room
3. Kennels
   - A. Medical section accommodating 10 animals
   - B. Surgery section for 5 animals
   - C. Contagious ward
     - 3 mange animals
     - 3 distemper animals
   - D. Boarders—10 animals
   - E. Runs—one run for each two animals
4. Kitchen (this area should be at the rear of the building)
   Storage space to hold a half ton of dry ration
5. Clipping and Bathing
6. Heating equipment and incinerator may be provided for in a basement area



ELEVATION



PLAN

Design by Ralph O. Kiper

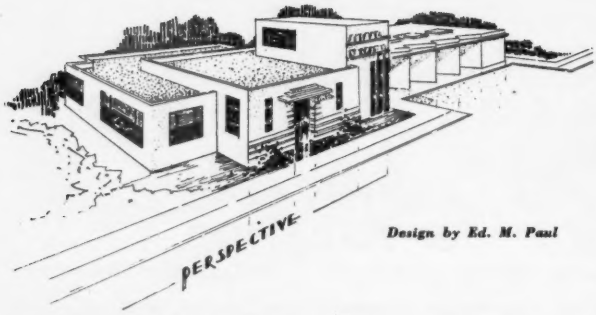
This building was designed to give each room a maximum of natural light and air as well as a logical place in the relationship of each unit to the whole. The X-ray unit and stair are in the center of the building since they need no natural light and with this location affords a more compact plan which would fit on a slightly narrower lot.

The service area in the basement contains ample storage space and all features of the mechanical elements necessary. Employees' service rooms are also located in the basement as well as incinerator, etc.

The runs are so designed as to give separation to animals with contagious diseases. Individual kennels are of concrete. In the large kennel block the cells are two units high but in the contagious ward they are of single unit height. Each kennel has its own drain and is so designed to be easily kept clean.

The hospital is designed to be built of brick veneer, painted white with cement paint. The interior walls are of plaster with an enamel finish. The floors are of tile, concrete or linoleum. This type of construction is relatively inexpensive and the total cost of the entire hospital should not exceed $8,000. The building would fit on a level piece of property about 100 feet frontage (including the runs with a depth normal for suburban plots.

Because of the proposed location, an attempt has been made to give the exterior somewhat of a residential character so as not to be too much out of place in residential suburban development. This same character could be further carried out in the landscape treatment around the building. In the event that it might become necessary to use the building for another purpose, it could easily be turned into a physician's office or a day nursery school.



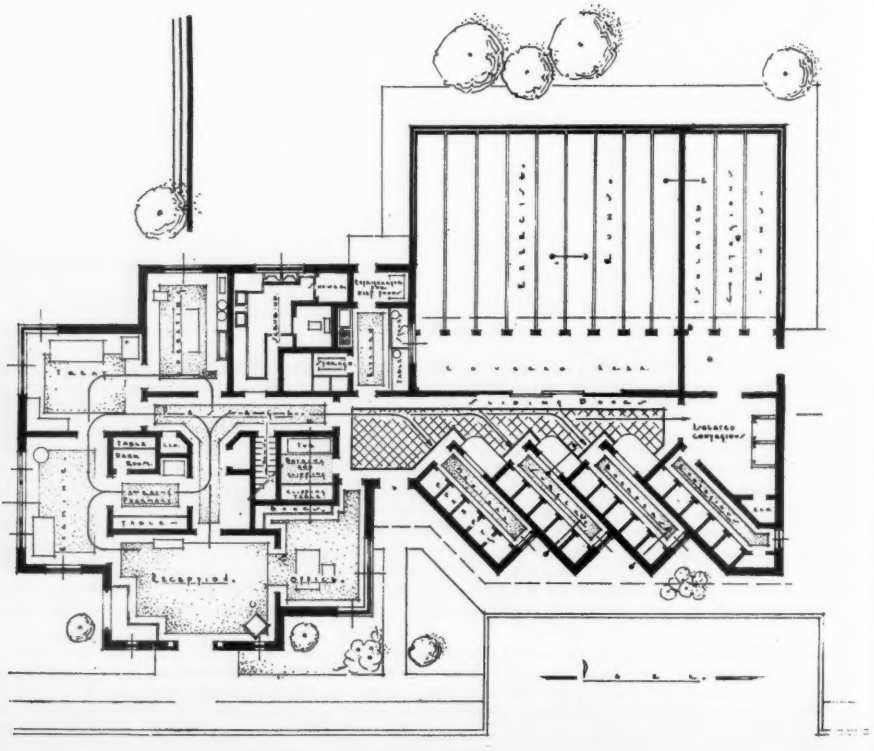
Design by Ed. M. Paul

The small animal hospital presents special problems to the designer not generally appreciated by the layman—until the building is completed. The special functions of this type of building and of the individual units comprising its whole become the primary consideration in developing the sketch plan. The designer feels that in this scheme he has attained a distinctive unity of functional architecture in a solution that meets the major requirements of the problem.

In this design the kennel unit will be worth close study as it was designed in a manner that seems to permit maximum efficiency. The kennel entrances are adjacent to one another and to a separate work table at each entrance for each kennel. This solution presents a satisfactory plan for utilization of light and ventilation. The kennel feature becomes a dominant feature of plan and elevation and reflects the function of the building as a whole.

The office is adjacent to the spacious reception room and is also easily accessible to other rooms of the hospital. Its distinctive window treatment is a feature both on interior and exterior.

The hospital is designed for construction in hollow tile with a stucco finish. It should be on a lot about 150 x 200 feet. The enclosed runs, when landscaped, would not be objectionable in any residential section. Because of the special handling of kennel areas the building would not readily adapt itself to remodelling for another type of work. The hospital should cost in the neighborhood of $12,000 but this cost would depend much upon the type of interior finish and the section of the country in which it was built.



Design by Douglas Baker

This hospital was designed to meet the needs of the veterinarian whose practice includes a fairly large number of small domestic animals. There are sufficient kennels for animals to be boarded as well as provision for those hospitalized both for surgery and for contagious diseases.

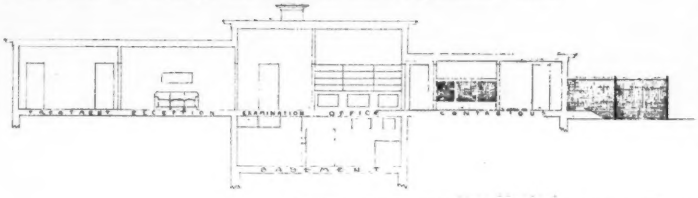
The surgery room is provided with ample storage for instruments and accessories. It is conveniently located near the scrub-up area and the pharmacy room—which both become a part of the treatment unit.

In the basement, beneath the central part of the building, are the heating system and the incinerator as well as storage area and room for the janitor or kennel man.

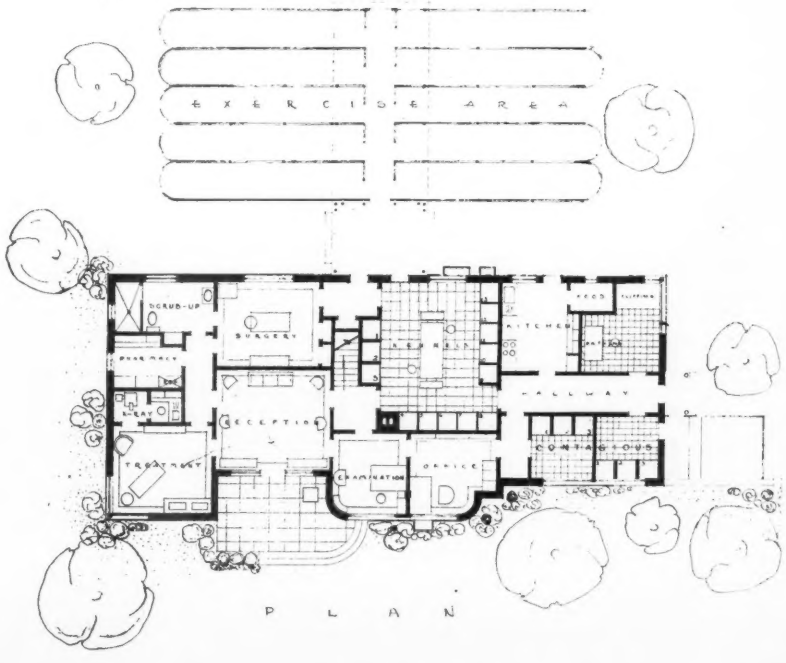
It was assumed that dogs suffering from distemper would not be able to use outdoor exercise area and so none was provided for them. No animal with a contagious disease need ever go near the boarders, or those undergoing surgical treatment or medical observation.

A kitchen is arranged for convenient access to both contagious and non-contagious wards. It has an adjoining storage room suitable for storing a half ton of dry food.

It is intended that the building be of monolithic concrete, steel windows, built-up roof and would cost approximately $9,000.00, depending somewhat on the section of the country in which built. It would require a lot of 125 feet frontage and one that was comparatively level.



No great amount of remodelling would be required to transform the building into a tea room in the event it should ever be desirable to discontinue its use as a hospital.



Farmer Miles

I recall a meeting of the Wisconsin Veterinary Society that I attended—well, I don't remember the year, but it must have been 40-odd years ago.

I suppose that in this world there have been plenty of men who have risen to prominence through their own self-education. They were born that way. There are also good men schooled in the work they perform, but many of them have a "big ego," and belittle the self-educated man. They are just a trifle better than the average run of humanity. You know them. There are some veterinarians built that way—at least, it was so at some of the veterinary meetings 35 to 40 years ago.

I have never upheld quacks; still, I have known a couple of them who, although they never went to college, weren't so bad at that, and might make some graduates think twice to head them off.

The meeting I recall was held at Madison, Wisconsin, in a basement room in the old Capitol. The program committee had invited Farmer Miles, a man who had won the respect of many a horseman throughout the United States and even in England, for his skill in the castration of cryptorchid horses. Solely on the ground that he was a non-graduate, this action of the committee was caustically criticized by a few.

Farmer Miles, a tall, lanky fellow from Charleston, Illinois, was built on the Abe Lincoln pattern—long arms, long hands, long fingers—an appearance decidedly homespun but wholesome. As a young man he began to castrate pigs. He found some ruptured and some with only one testicle down, and he thought he might as well try to operate on them too. His ability became known around the community, and the farmers asked him to castrate their colts, which he obligingly did. His fame spread throughout his section and beyond, and he was finally invited to come to England. When he first arrived in England, he looked so much like his name—Farmer Miles—that his reception was rather cold. However, as he put it, he "hung around," doing such operations as came his way, and before he left England he was asked to operate on a ridgeling in the stables of Queen Victoria.

All this and many other anecdotes from his varied career the old man related to us that evening at the meeting; starting to talk in the early evening, he kept us there till after midnight—and it was all interesting, too.

The next morning there was a clinic at the University stables. The committee had procured two or three cryptorchid horses to be operated on by Farmer Miles. As I mentioned before, there are always some bigwigs who like to show off, and although the majority of us were there to see Farmer Miles "do his stuff," a few of these educated experts asked for permission to operate on the first horse.

So they started in. But, as sometimes happens in a public clinic to the best of operators, they just couldn't find what they were looking for, toil and perspire as they would. As time went on, the candid onlookers began to call, "Let the farmer try!"—and the volunteers finally gave it up as a bad job. The farmer rolled up his sleeves. He had the horse tied the way he wanted it, put his long fingers into the incision—just his fingers—and calmly extracted the object for which the other fellows had been groping with their arms in up to the elbow.

The two other horses were brought out, and Farmer Miles pulled his knife out of his pants pocket, cut in, used his long fingers, and in a short time the operations were over.

"Them days is gone forever," and this little anecdote is passed on simply as an amusing bit of veterinary history. I hope no one will think that I am trying to belittle a college education—not at all. If the story has a moral, it is that even after one is graduated *magna cum laude,* one can still learn from others. The young graduate of today receives far more from his schooling than I did 43 years ago—but he still needs experience, and can learn a lot from cultivating the friendship of older men. Some of us old fellows may be short on theory, but we're long on experience!

Whenever I want to have a quiet laugh

by myself, I reach up to the shelf which contains my 29 bound volumes of VETERINARY MEDICINE, pick out one with a slip of paper marking the place, and reread a certain yarn by Doctor Baker—the Idaho sage that doesn't know it all, but gets there just the same.

A. L. FOSSE

Cambridge, Wis.

Comment: Miles was born in Kentucky in 1825 and died at Charleston, Ill., Mar. 5, 1902. *Veterinary Military History* says of "Farmer" Miles:

"The little book ['Veterinary Dictionary and Horseman's Guide,' by James A. Going] contains an interesting advertisement of T. C. (Farmer) Miles, in which we note the prices charged for castrating cryptorchids were $20.00 each in groups of six or more in Pennsylvania and territory east, and $15.00 west of Pennsylvania. Some idea of Mr. Miles' practice in this line is indicated by the fact that he regularly published in *The Spirit of the Times* a time table, and requested those wanting his services to notify him at Charleston, Illinois, in ample time to arrange for the work. . . .

"Farmer Miles was a distinguished cryptorchidectomist and oophorectomist of the '70's. He taught the doctrine of Hippocrates and practiced it. He opened his class work with prayer. He was not a hypocrite. He taught his students to act like gentlemen, dress like gentlemen, be gentlemen, and had no use for fakirs and fakes. He published an excellent manual on the anatomy of the inguinal region and its surgery, demonstrated a classical method of restraining large animals for inguinal operations, and taught a method of ridgeling castration that none has improved except in the matter of asepsis. Had the veterinary quacks of his day and their descendants followed his concepts of what a veterinarian should be and should do in the matter of conduct and skill, the coming graduates would have found it far harder to replace them. The quack's Waterloo was the field of conduct. The ethics of Farmer Miles would have postponed the supplanting of the American non-graduate by the young, inexperienced graduate, just as our ethics now must save the veterinary profession from public censure. Time has not changed the influence of professional conduct. It never will. The power of example is supreme. . . .

"Mr. Tarlton C. Miles was rather a conspicuous figure in American veterinary history. He was a great advertiser, a successful one. He claimed to be able to castrate cryptorchid horses and spay cattle better than anyone else in the world, and constantly offered to put up $500.00 to be awarded to anyone who would enter a contest with him and win. He received an endless amount of free publicity and he paid for much additional advertising. Rather strangely, several of the best known veterinarians in the United States, most of them graduates, gave him testimonials which he published in his advertisements.

"Miles claimed that his operation on horses through the inguinal canal was absolutely original with him, and it may have been; but of course he did not originate the operation, as others had performed it much earlier, Vanhaest, a Belgian veterinarian, having described it in 1845. Miles, however, may not have read any of the several accounts of it that had been published in Europe.

"Before Miles popularized the inguinal operation, the flank operation for the castration of cryptorchids was the one commonly used in America and naturally, with poor success. Miles does not state when he first performed the inguinal operation, but certainly it was not until 1874 that he began performing these operations on a large scale. At least four years earlier, Professor Law had begun using the same operation in New York State and, of course, the possibility remains that Miles may have heard of Law's operation.

"Miles did not perform so many of these operations as is generally supposed. It was because so few were being done by anyone else at the time that Miles' practice seemed so extensive. He probably did not understate the case when he claimed in his circulars to have operated on 1200 cryptorchid horses in the years 1874 and 1875. Incidentally, he states that 36 of these animals (3%) died as a result of the operation."

Farmer Miles (seated) and one of the classes in his school of inguinal surgery at Charleston, Ill.

A Week of Winter Practice

By E. T. BAKER, Moscow, Idaho

AS a rule, practice runs along about the same year after year, much as football follows baseball, and then comes basketball and bowling, with golf and tennis opening up again in the spring. About the only things that tend to disrupt the usual annual procession of cases are the weather, the price of various animals, and out-of-the-ordinary epizootics.

In the northwest, the fall of 1940 was one of the wettest ever known. Fortunately, the harvest was not interfered with, but the rains began so early and kept at it so steadily that many fields of late oats, wheat, beans and potatoes were lost. One can see grain drills standing out in the middle of a field all ready for seeding, and with sacks of treated wheat still out there, but now green from the warm weather and excessive moisture.

However, on a trip to the middle west in November we found very different conditions, with cold, dry weather, and one of the worst storms ever known so early. We happened to be passing through Denver on Armistice Day, with the wind and snow howling in from Wyoming, and saw the results of where two storms came together in Iowa.

To the practitioner, therefore, weather is a very important feature, and we keep in close touch with all the various forecasts, including our own barometer. We still notice a large number of milk fever cases during a pre-storm period, when the barometer is dropping, just as we see an unusual number of bloat cases and wire cuts in the spring before a spell of bad weather.

Let us describe a few cases taken from a week of typical practice in northern Idaho, at an altitude of some 2,600 feet, where winter usually begins around the middle of November, with most of our snow in February. We count on two to five feet of snow during the winter, with the thermometer dropping down to twenty below. However, we might add, this does not seem as cold as ten above zero in Chicago, because of our rather dry atmosphere.

I

In keeping with the unusual season, our first case this week was a surprise. Early Monday morning, we received a call to a Catholic Mission where the Sisters of Charity conduct a school for the Coeur d'Alene Indian children. They also have a farm with a number of animals, including an up-to-date dairy herd.

We found a big mare completely paralyzed, and were thinking of azoturia or forage poisoning, when a colt, almost as large as the mare, walked up and tried to suck her. We learned that this mare and colt had been out on pasture all fall with no grain, and quickly changed our diagnosis to a form of eclampsia or grass tetany. Her ears were cold as a banker's heart, and the entire clinical picture looked like milk fever in a cow. We figured most of her calcium was in the colt.

We gave her a capsule of equal parts chloral and gum acacia, for she could still swallow readily, and 500cc dextrose and calcium gluconate. A powder containing various minerals was left to give as an electuary.

In all our years of experience this was a new one on us, particularly so late in the year. Had it been June we would not have been surprised.

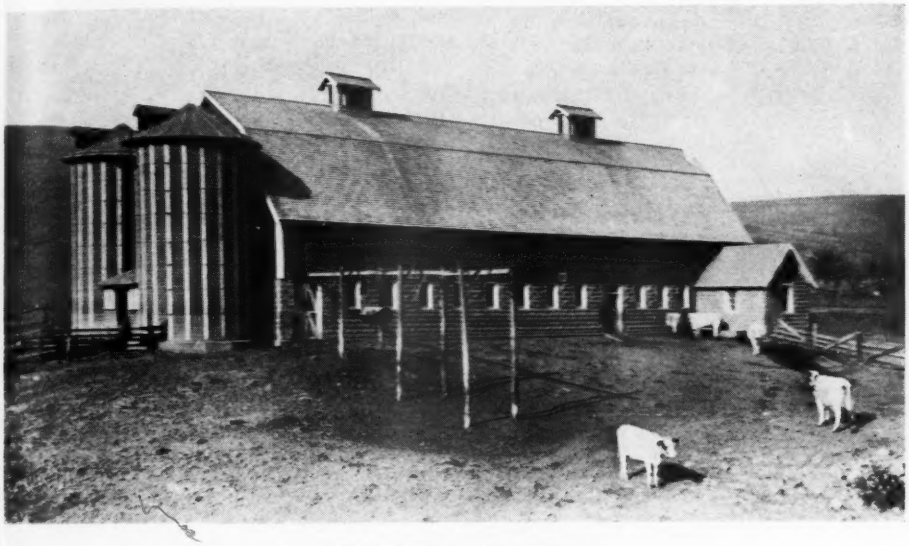
II

Just after we had returned from our hundred-mile trip to the above, a farmer, living out about five miles, called us up to see a Hereford heifer who was trying to increase the cattle population with but little success.

We dressed for the occasion at home, and took along a 250cc bottle of warmed calcium gluconate. As Doctor Krill, of Ohio State, observed at the Mississippi Valley convention, in his talk on Obstetrics, we depend more on a good right arm, chains, block and tackle than on hooks with which to puncture the uterus.

First of all, we like to have our patient in a position with the hind parts slightly ele-

vated, and a bale of hay or straw under her belly in case she takes a notion to lie down. Next, we inject the gluconate into the deep muscles of the shoulder, as this seems to



A Typical Western Dairy Barn

relieve straining and subsequent eversion, and also helps to remove the placenta in a normal fashion. Third, we make a manual examination to ascertain the trouble, and then get everything ready, for when we start, we want to remove the fetus as fast as we can to prevent suffocation.

In this case, we found the left front foot of the fetus bent back. By repelling the head with our left hand, we were able to get the foot in normal position. Then we adjusted the chains, and by having the owner do most of the pulling, made him realize just how difficult the operation was. We have found that this tends to make owners more appreciative, and induces them to part with the fee in a more generous fashion.

From the time we left the house until we returned with a ten dollar check, just one hour and twenty minutes had elapsed. We have encouraged our clients to call us up at the earliest possible moment, and make our charge accordingly. Years ago, we used to work all day or night on one of these cases, and have to charge twenty or thirty dollars, even if the mother and young both died, due to neglect.

Another thing, to secure the best results, we insist the cow and her calf be kept in a box stall for a few days. They seem to do better. Mother Nature is a pretty good doctor herself, but like the veterinarian, she doesn't do her best work on the leeward side of a wire fence in a blizzard.

III

Early Tuesday morning we received a call to remove the afterbirth in a Guernsey cow which had calved Sunday morning. The owner said she was beginning to lose her appetite and "act funny." Perhaps if his urethra had been blocked, preventing normal urination for nearly 24 hours, he might not have been too comfortable himself.

First of all, we gave her 250cc calcium gluconate intramuscularly, with two Reeks' bovine capsules, and a little powder for the owner to give as an electuary.

With rubber gloves, we removed the placenta, and inserted two uterine capsules. Except where there is much infection, we do not "flush out" the uterus any more.

IV

Later on that morning we looked at a big mare with the left hind fetlock greatly

Everything is game to the author when he goes "shooting" with his trusty graflex. Animals, wild and domestic, sick and well; snow scenes, waterfalls, mountains, cabins, sheep herders, fat tourists are just so many excitants to his urge to take a "shot". Here he is shown photographing a sour dough prospector trudging to town for another stake

swollen, and the coronary band very sensitive. We diagnosed the trouble as a gravel working its way out.

We suggested the shoe be taken off, and the sole trimmed, and the foot soaked in a clean mud or sand pack, with a little lysol added.

We gave her a capsule of equal parts aspirin, sodium bicarbonate and sulfanilamide, with a "shot" of mixed bacterin. Leaving the owner some hoof oil and a powder to be mixed with syrup and given as an electuary, we moved on to our next case.

V

A purebred Hereford cow which had calved only the week before pushed the door of her box stall open, and filled up on a mixture of ground oats, wheat and barley, of about equal parts. This had happened two nights before, and up to now she had shown no signs of illness.

We found her standing like the last rose of summer, with all the typical symptoms of founder, and perhaps a little touch of milk fever. Even her hoofs were feverish, and her left flank felt like a bride's first batch of bread.

First of all we gave her 500cc equal parts calcium gluconate and dextrose, intramuscularly, with a quarter grain eserin and a tenth of lobelin added. Next, we administered an aloin purgative capsule, with a couple of Reeks' bovine capsules, and one of tartar emetic. We applied hoof oil to the feet, and, just before we left, administered 100cc normal blood serum. We left the owner a powder of stimulants and rumentorics to be given as an electuary.

We used to give these cases all kinds of physics, oils and salines, and get messed up in administering them. We now find the gluconate seems to start up the pillars of the rumen and assist nature in taking care of the overloading of the paunch. Usually, in about three days, the owner calls up and wants to know how much to feed the patient.

VI

We administered the first "shot" of canine distemper vaccine to a cocker spaniel pup.

In order to keep the little patient from giving vent to a large sized yelp, we have a little piece of rubber tubing on a medicine dropper. From a small, wide-mouthed vial we draw up a dropper full of elixir lactated pepsin and "shoot" it in the puppy's mouth. Then, while it is enjoying this toothsome mixture, we slip our 19G needle quickly into its hide and the job is done before it really realizes what has happened.

In devitalized cases, we always give the owner a little bottle of this with a little calcium gluconate added, and he and the pup have a lot of fun using it up.

Now, we are not a small animal practitioner and do not claim to know much about the subject, but we do know that three cents worth of psychology will go a long way with the average owner, especially with a woman.

VII

Our next case was a reminder of the dear old, golden days, for it was none other than our childhood playmate, fistula of the withers. It was in a seven-year-old gray gelding, and the owner explained "he had been touchy in that shoulder ever since harvest."

We gave him a "shot" of mixed bacterin, and a capsule of sulfanilamide and sodium bicarbonate. We also took a piece of gauze

Fistula of the Withers

Where the spinous processes are not too much involved, treatment is comparatively simple as compared to the radical surgery of a generation ago. This case recovered in about two months

bandage and dipped it into our "red oil" and inserted this in the sore. Leaving the owner a good tonic and vermifuge powder to give in the oats twice daily, and a little red oil for him to fool around with, we left both him and the patient resting much easier, while we carefully filed away a check for services rendered.

Then our mind wandered back over the past few decades, when the patient would have been "throwed," and the "thistlo" with most of the neck removed, while blood spurted all over the adjacent territory.

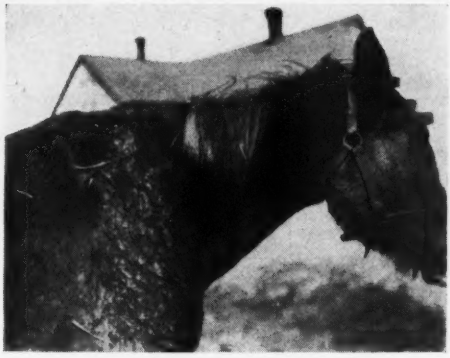
"Gotta git that there core out 'fore it will heal," was the general verdict. Usually, we would be called after the owner, Grandpappy and Uncle Zeke had blistered the parts with blue vitriol or other caustics, and the patient had to be roped on the dead run. "Them was the carefree days" when a scalpel and blood flying in all directions marked the true scientist and eminent "vetinary surgeon."

VIII

Our next case, can you believe it, was that of a milk goat suffering with acute indigestion. This animal had been tethered along the highway, and given very little grain. Its digestive tract was as quiet as the Italian navy, and its milk supply had dropped to almost nothing.

Not only was Tilda Marie Toggenburg "bound up tightern' a drum," but she was developing a mild case of mastitis.

First we injected 100cc calcium gluconate in the region of the shoulder, massaging well. Next, we gave her eight ounces of our bovine laxative, of which sodium thiosulphate is a leading constituent. For some reason or other, this drug seems to have a



Advanced Fistula of the Withers

This case had been "running" for over a year, according to the owner, who could "doctor hosses" with the best of them. However, this stumped the self anointed authority, and he finally admitted defeat. With good drainage; cleanliness; serum therapy and blood tonics, the victim recovered in 6 months

very favorable action on the mammary gland, as well as on the digestive tract.

An electuary powder consisting of ginger, gentian, nux vomica and tartar emetic was left, and whole oats and iodized salt suggested, with the addition of bright alfalfa hay. We suggested the udder be bathed with salt and vinegar solution and thoroughly dried, and milked out four times a day.

As this was a poor family we forgot to charge them anything.

A Typical Milk Goat

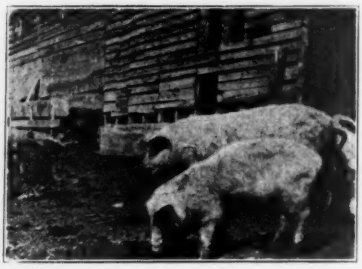
IX

A farmer with about 60 fall pigs called up and asked us to come out and look at them. He said they were not doing well, and that some of them were lame and squealed when touched. Placing a couple of bottles of ery-

sipelas serum and warmed calcium gluconate in our grip, we set sail for the seat of war. We found the animals acting as Doctor Breed has so aptly described the condition, "one of overstimulation and excitement."

We not only give serum to all the animals in such cases, but add from 10 to 30cc calcium gluconate intramuscularly to the infected ones. In addition, of course, we use the oral alkalinizing treatment, with sour milk or buttermilk, oats, a little aspirin and a general blood conditioner and vermifuge. We like to have them separated into small bunches, so they will not pile up and get overheated, then go out in the cold and pick up pneumonia, which means more shovel work for the hired man.

Plenty of Cat "Flu"



As we look back over the years, we can see we have had this condition for some time, but did not recognize it. While hog cholera serum will help some cases, we can now look back and see why we had some "breaks," which is a delicate and refined term for a mistaken diagnosis or just plain hard luck.

X

Several women called up and described their young cats as having some kind of a "distemper." The patient would be apparently all right one day; sneeze before breakfast the next; be affected with a green vomit about noon, and be dead the next day.

We have often wondered if this type of gastroenteritis or feline "flu" has any connection with human influenza, for they often appear about the same time.

Our best results have been obtained by mixing two drops turpentine and five drops spirits camphor in a little syrup and giving this once. Then follow with calcium gluconate solution in elixir lactated pepsin, with a couple of drops of echafolta added. Perhaps an enteric tablet of sulfanilamide might help.

It is surprising how much interest is taken in the ailments of cats. We answer the veterinary queries for a large farm journal, and on the average several a week come in about cats. On the farm, just as in ancient Egypt, cats are valued pretty high, particularly good mousers.

The great trouble in treating feline diseases is largely due to the fact that the owner never notices anything the matter until the patient is beyond redemption. A little more information on the proper care and diet of cats will help the general public.

XI

Our next case was that of a jack which had been turned out in a corral with a bunch of other horses and mules. In some way or other he was kicked in the region of the penis, and when we arrived was suffering extreme pain.

We gave him a capsule of equal parts chloral and gum acacia, and a quarter grain of atropin. Years before, an old country physician had told us he used one part of guaiacol in 20 parts camphorated oil for orchitis in the human, and we tried this, for what will work on one jackass should be equally efficacious for another. We also had the owner make a suspensory bandage, and leaving him a powder with a little aspirin in it, we left. In about a week, the condition was much improved.

XII

About this time we received a call to see a cow that had just freshened and was unable to get up. This very peculiar and difficult-to-diagnose ailment occurs in our practice about 150 times a year. In fact, during September and October of this past autumn we had just 46 cases of milk fever.

Treating this disease has become an art and a science with us. What we want is a cow back to her normal flow of milk in a week or so, and a satisfied client. Not only that, but if the treatment seems too simple, the client is going to regret calling us and will also kick on the bill.

About five years ago we treated a case for a dairyman who has always been a good client of ours. She was up before we could get the needle out of her jugular.

"Gosh, Doc, she would have been up herself, she had such a light touch of it," he observed.

The next case he discovered about noon, and let her go until after supper, as he expected she would get up also. Just about the time we were getting ready to go down to the Elks Temple for a bowling match, he called us. As we drove home, we reviewed the situation. Like other practitioners, at rare intervals we indulge in thought. (The rest of the time we merely use our muscles.)

We reasoned thusly: Suppose we called a plumber to fix a leaky pipe, and, when he arrived, he merely gave it a little twist or two, smiled at us as if to say: "Why, any poor simp could have fixed that," and then returned whence he had come. At the end of the month we would receive a bill for two bucks.

But, suppose our plumber was made of

Aren't we grateful for Calcium Gluconate

sterner stuff, and wtih years of experience to back up his gray hairs around the temples, what would he do? He would take a glance at the pipe suffering from a slight umbilical hernia and gasp to himself. Never, in 20 years, had he been called to see such a serious and unusual accident. In a few short, breathless hours, our entire plumbing system would have been tee-totally ruined. We would shudder at the bare idea. Then, he would go back to his shop for a very special wrench and return ready to save our home and fireside from destruction. At the end of the month a neatly typed bill for twelve dollars would grace our mail.

What would be the result? We would pay the two dollars grudgingly and "beef" whenever we thought of it. On the contrary, we would gladly and willingly pay the twelve dollars, and feel an everlasting debt of gratitude for getting off so easy.

So, in treating a case of milk fever, we now inject 500cc gluconate and dextrose intramuscularly, with 20 or 30cc sterile camphorated oil; give a rectal injection of about four to six ounces of the following mixture: eight ounces glycerine mixed in 24 ounces red water. It is remarkable how "powerful this red stuff is to bring out the masses of hard feces."

Next, we rub liniment over the point of injection, and massage it thoroughly, and rub this also over the back and loin. We also leave some for the owner to apply, for he dearly loves to do this, and why deprive him of such a simple pleasure?

Finally, we leave him a powder to be mixed in corn syrup and given as an electuary, and instruct him to keep her in a comfortable stall or shed for at least three or four days.

A Farm Flock When Winter Comes

As a rule, she gets up in from two to four hours, and the owner tells all the neighbors who drop in that "she was nigh onto bein' dead if I hadn't got Doc when I did, an' me an' him saved her."

Does he squawk when he comes in to pay his bill? He does not. The older we grow the more we appreciate what a wonderful aid to science a little psychology can be. Too bad more of this is not taught in our colleges!

XIII

A small farm flock of about 35 grade, medium wool ewes began dying and, after six had turned up their toes, the owner called us in. We found they had pregnancy disease.

All the survivors were given 100cc calcium gluconate and dextrose in the axillary space with our Simplex intravenous outfit. However, we use a 15G needle, and probably an 18G, short one would be better. With plenty of massage, and not hitting the periosteum, we have no trouble.

A suitable powder containing calcium, iodine and phosphorus was left to be mixed with salt.

XIV

We wound up the week with our old winter standby — equine impaction. If we never treat another sick horse we would be happy. Our idea of heaven is two cases of milk fever every morning for cash customers, and no canine distemper or equine impaction.

Our mortality is as high as it ever was, and this is due to three reasons: First, most of our animals are old and devitalized from an unbalanced diet of straw and scenery, with worms and bots; second, their digestive systems are just "petered out" from too much bulky forage; and third, they are so cheap, the owner hesistates to call us until the undertaker should be given a buzz instead.

We have treated thousands of these cases during the past 30 years. We have used everything except a stick of dynamite. We see cases get well that should, by all the clinical symptoms, die, and *vice versa*. We make no prognoses. We merely "treat 'em and trust to God."

In general, our advice is not to overtreat these cases. Give nature a chance, and do not be in a hurry. Arecoline, eserin and even lentin should be used with care, if at all, until some preliminary medication has been given.

Summary

And so the weeks pass by, with a multitude of new cases, new owners and new results.

With the exception of city meat inspection, state work, and farm journal editorial work, we have no outside professional interests. Years ago we resolved to be as good a practitioner as we could. We make mistakes but we try to profit by them. We must accomplish more good than harm or we would not have survived in the same location for just 30 years.

Anthrax in Horses

By ZAKI MORCOS, M.V.Sc., F.R.C.V.S., D.V.H.
Veterinary School, Cairo, Egypt

Literature

Hatyra, Marek and Manniger[1] report:

Anthrax infection by oral administration of virulent material is uncertain.

Horses and sheep contract anthrax after the injection of large quantities of spores but are resistant to material containing the bacilli only, when the mucous membrane of the stomach is intact.

The disease is most prevalent during the summer, especially in warm days following rain or in rice fields after draining the water in warm weather, also during a drought in low-lying moist places, not usually used for pasture.

In otherwise healthy animals which harbor spores in their bodies, and are therefore in a state of "latent" or "resting" infection ("spore carriers"), external debilitating influences, such as exposure to cold or heat, overexertion, hunger, etc., and also intercurrent diseases may provoke an outbreak of anthrax.

Anatomical changes due to anthrax include:

1. Dark red blood exudes from the body openings, the mucous membranes are cyanotic.

2. On post-mortem examination there are general signs of death from asphyxia.

3. The spleen, with rare exceptions, shows the characteristic appearance of acute swelling.

4. In horses there is edematous swelling of a normal spleen and fibrinous pleuropneumonia.

5. Anthrax bacilli are normally found in great numbers in the blood and internal organs; sometimes they are few in number, especially in apoplectic cases that develop rapidly.

In horses and in swine the lesions may be entirely confined to the throat. In such cases, throat cases, enlargement of the spleen is not pronounced.

The symptoms of anthrax include:

In horses, anthrax is manifested, usually, by severe colic. There is usually edema of the neck and chest and also in the shoulders or in the pharyngeal region.

Symptoms of excitement at the outset of the disease are seldom observed, but dyspnea and cyanosis are always pronounced. Hemorrhagic evacuations from the intestine and bladder are common symptoms.

Local cutaneous anthrax may end in recovery.

Diagnosis: In horses, anthrax may be mistaken for intestinal obstruction or invagination on account of the severe colic. The bacilli can be found only during a short period, at the earliest 16-18 hours, before death; and after death. The diagnosis can be confirmed by animal inoculation, for which the usual laboratory animals with the exception of rats, are suitable.

Wooldridge[2] states:

The course of anthrax infection in the horse is rarely so rapid as in the ox, and symptoms are usually observed; violent and continuous colic, high temperature, straining and subsequent collapse and death. A throat form is also common, in which case there is a painful, rapidly growing swelling of the throat. Breathing becomes difficult and the horse becomes frantic with distress. Death supervenes, usually directly attributable to asphyxia; although at or about the point of death the bacilli may become generalized, but not invariably.

In the horse, and sometimes in the pig, one may have to examine the pharyngeal lymphatic glands or even the mesenteric glands before a definite diagnosis can be made.

In cattle and sheep the blood is exten-

[1] Hutyra, Marek and Manninger, 1938. *Special Pathology and Therapeutics of the Domesticated Animals*, Vol. I, pp. 1-35.

[2] *Encyclopedia of Veterinary Medicine*, 1934. Vol. I, pp. 123 and 562.

sively invaded by the bacilli a short time before death; so constantly, in fact, that if they are not to be found at the time of death in a suspected case, one may be certain that anthrax is not the cause of death.

In horses the organisms are present in the vast majority of cases, but in pigs death often occurs before the blood stream is invaded, and finding the organisms may be very difficult.

Eurich and Hewlett[3] state that anthrax in the horse may assume two forms: one, the commoner, is a malignant form, septicemic in character, and usually runs its course rapidly, death occurring within from eight to 30 hours, without external manifestations; the other, from which recovery is possible, is milder and characterized by massive swellings about the head, neck and shoulders. The massive swellings in the external forms of anthrax infections develop around a lymphatic gland and consist of a hemorrhagic, gelatinous edema infiltrating the muscular or other tissue of the part. Anthrax bacilli are abundant in it and also in the spleen; in the other organs and tissues they are less numerous and occur almost entirely in the capillary blood vessels, the arterioles and veins containing relatively few. Thus, in the kidney the bacilli are mostly confined to the glomeruli and capillaries between the tubules; the blood, organs and tissues, the nasal discharge, dejecta and urine are all infective, but it is the exception for the milk to contain bacilli.

Kendall[4] states: Material for examination is best obtained from the spleen or liver of dead animals or from the blood of an infected animal. In horses infection may take place through the skin as well.

Muir and Ritchie[5] report:

In the less acute cases of anthrax the animal is apparently out of sorts and does not feed; there is often a sanguineous discharge from the bowels and bloody mucus may be observed about the mouth and nose. Progressive weakness, with cyanosis, is followed by death in from 12 to 48 hours.

Such subacute conditions are especially found among horses which are by nature less susceptible to the disease than cattle and sheep. Occasionally even in these highly susceptible animals recovery takes place.

Bacilli can be found in the blood on microscopic examination, but they are especially numerous in the capillaries of internal organs.

Often in pigs dying of anthrax, bacilli do not occur in the blood. Any hemorrhagic infection in the spleen of a suspected animal should be carefully investigated.

With these differences in susceptibility, insead of the widespread occurrence of the bacilli, they may be confined to the point where they first gained access to the body and the lymphatic system in relation to it (particularly in swine) or may be very sparsely scattered in organs such as the spleen (which is often normal in size), the lungs or kidneys.

Bigger[6] writes:

The blood appears to possess considerably higher powers of resistance than the tissues of the body, and it is only when the animal's resistance is completely broken down that a true septicemia occurs.

Gaiger and Davies[7] write:

In the horses the blood and spleen pulp at the time of death show large numbers of bacilli, but in quite a percentage of cases the blood may have too few bacilli to be found by the microscope. Bacilli are present in the edematous swellings of the throat and other regions.

In horses and mules severe colic is frequently seen, edematous swelling in the throat, and marked salivation.

In the horse and pig, if microscopic examination of the blood fails to reveal the organisms, smears should be made from the local edema.

Rice[8] states that the gastrointestinal form of anthrax causes a violent intestinal

[3] Eurich, F. W., and R. T. Hewlett, 1930. *System of Bacteriology*, Medical Research Council, Vol. V, p. 456.

[4] Kendall, Arthur Isaac, 1929. *Textbook of Bacteriology*, p. 408.

[5] Muir and Ritchie, 1927. *Manual of Bacteriology*, p. 380. p. 303.

[6] Bigger, J. W., 1932. Handbook of Bacteriology, p. 262.

[7] Gaiger, S. H., and G. O. Davies, 1932. *Veterinary Pathology and Bacteriology*, p. 192.

[8] Rice, Thurman B., 1938. *A Textbook of Bacteriology*,

irritation with blood in the stool and great prostration. Nearly all cases die. The germs are found in the feces.

Mackie and McCartney[9] say that in pigs and horses the bacilli may not be detectable in the blood.

Scott[10] states that in the horse the tendency is for the disease to confine its effects to the glands of the throat and recovery has been known to follow. When the lesions are in the bowels or lungs, death results invariably.

Drimmelen[11] reported three cattle dead of anthrax, in which anthrax bacilli could be found in only one, but they were demonstrated in smears from the glands in the throat region of the second and in the blood of the third.

Topley and Wilson[12] state that in the larger animals, the bacilli are usually plentiful in the blood, but pigs and horses may die before the organisms have proliferated sufficiently to be detected microscopically (Stockman, 1911). In pigs and horses, death may occur in the early stages of septicemia when very few organisms are present in the blood; it is advisable to excise a superficial lymphatic gland and to make smears of any edematous fluid that may be present.

Lutje[13] stated that pathological lesions in various tissues at post-mortem examination appeared to show a definite localized infection of anthrax over and above the generalized signs of septicemia.

Reyna[14] concluded that anthrax bacilli were not readily isolated from infected water buffalo which had died of anthrax.

Weidlich[15] treated a cow infected with anthrax with antiserum and it recovered. Thereafter an acute mastitis developed and anthrax bacilli were excreted in the milk. At subsequent autopsy, anthrax infection was found only in the udder, where it had become localized.

Behnke[16] found *B. anthracis* in the necrotic lymph gland of pigs affected with anthrax. They were in a state of degeneration, being mostly very short and without a capsule, with occasional swollen bacilli and intensely stained capsule.

Kmosko[17] considers the most important factors predisposing to anthrax to be the presence of virulent bacilli in the digestive organs, especially in the large intestine and mechanical or chemical lesions of the epithelium of the digestive tract, caused by coarse forage plants.

Clinical Records

Case No. 1—In December, 1938, at a racing stable of a British trainer in Heliopolis, Egypt, I was called to see a dark bay Arab pony four years old. The horse was down, passing watery greenish feces, not tinged with blood but having a very offensive odor. The mucous membrane of the eyes and gums were deeply congested and dark red in color. The pony showed signs of spasmodic colic, with breathing labored; it tried to get up but dropped down again. The temperature was 39°C. On asking about the history, the trainer said "Nearly a month ago, I lost a valuable pony with the very same symptoms, two veterinary surgeons attended him, but he died within 48 hours. A post-mortem examination was made," I at once called the two veterinary surgeons and they said in reply to my inquiries: "Yes, the other bay pony died with the same symptoms. On autopsy the blood was dark, not quite coagulable, and the intestines and internal organs were inflamed. The blood was not examined microscopically." I asked what their diagnosis was. One said it was typhoid and when I said I had never heard of typhoid in the horse, the other said "hemorrhagic gastroenteritis." On questioning the trainer further and inspecting the feed given these horses having made certain that the pony did not

[9] Mackie and McCartney, 1934. *An Introduction to Practical Bacteriology*, p. 313.

[10] Scott, William, 1913. *Clinical Bacteriology*, p. 133.

[11] Drimmelen, 1938. An outbreak of an unusual type of anthrax. *Jnl. S. Afr. Med. Ass.*, pp. 190-191.

[12] Topley, W. W. C., and G. S. Wilson, 1936. *The Principles of Bacteriology*, p. 1373.

[13] Lutje, 1936. Anthrax in lower Elbe district, Germany. *Dtsch. Tierarztl. Wschr.* 44, pp. 719-726.

[14] Reyna, J. L., 1936. First anthrax outbreak in Leyte. *Phil. Jnl. Anim. Ind.* 3, pp. 397-410.

[15] Weidlich, N., 1934. Infection of the udder of a cow by anthrax bacilli. *Tierarztl. Mschr.* 21, pp. 289-292.

[16] Behnke, 1934. Changes in *Bacillus Anthracis* after localized anthrax in swine. *Dtsch. Tierarztl. Mschr.* 42, pp. 365-366.

[17] Kmosko, J., 1934. The epidemiology of anthrax in cattle. *Zverolek. Obz.* 27, pp 281-286.

have any chemicals nor any previous treatment, chemical poisoning was excluded. I immediately thought of anthrax, and injected 50cc anti-anthrax serum intramuscularly once (at 7 p. m.). Next morning at 6 a. m. I visited the pony and to my pleasure, he was up attempting to eat his barseem (green food) and I gave him another 50cc of serum.

A month later the pony won two or three races in succession.

Before the first dose of serum 15cc blood were aseptically drawn on a broth flask and incubated for three days, with negative results. Emulsions of barley, tibn, chopped grass and water from the stable concerned were seeded and inoculated into guinea pigs, with negative results.

Case No. 2—Two weeks following, at the same stable, a grey Arab pony, three years old, developed severe spasmodic colic, I was called at once. The pony was up, distressed with violent colic and purging. The feces were watery, staining all the walls of the box, and a very offensive odor. No blood was passed. The temperature was 38°C. The animal was breathing with difficulty. The mucous membranes of lips, gums, and eyes were congested so deeply as to be almost bleeding. Thirty cc of blood aseptically collected, seeded on broth and incubated for 48 hours, proved sterile. The pony was given 100cc of anti-anthrax serum intramuscularly and recovered, winning races 40 days later.

Case No. 3—Three weeks following Case No. 2, at the same stable, a grey Arab pony, three years old, developed the same symptoms, with a temperature of 39° C. Blood cultures proved negative, and the pony was inoculated on three successive days with 40cc of anti-anthrax serum intramuscularly and recovered.

Again inquiry into possible sources of infection was instituted and it was found that the fore-tendons of all the horses were covered with a sort of mud of an astringent nature. This was inoculated into guinea-pigs with negative results.

At this stage, I advised the trainer to inject all the other horses in the stable with 30cc of anti-anthrax serum intramusclarly. Twenty-five horses were inoculated and no other case has appeared to date.

Case No. 4—About 40 days after treating Case No. 3, I was called to see a dark bay thoroughbred mare, four years old, at a neighboring stable. She had diarrhea, but without colic. The mucous membranes of the lips and eyes looked more or less normal. I prescribed a sedative antiseptic containing carbolic acid and chlorodyne. On the same day I became ill with influenza and was in bed for seven days. The mare died after five days illness, and the attending veterinarian told me that he could not trace any infectious disease. There were no further deaths in this stable.

Case No. 5—July 12, 1939, I was called to a farm near Alexandria to see a dark bay pregnant mare. She was in rather poor condition, with a temperature of 38.9°C, breathing with great difficulty and snorting loudly. Nasal and salivary discharges were profuse. When offered water in green food, the mare attempted to drink or eat, but in vain. She was in a standing position. Friction sounds were distinct all over both lungs and there was abdominal breathing. The pulse was hardly perceptible. The caretaker said there had been no previous cases. There were no signs of colic in this case, the predominant features were profuse salivation and snorting. The mare died the same night, aborting a dead fetus a few minutes before death. Blood cultures were negative, and post-mortem diagnosis by the municipal veterinary inspector was pleuro-pneumonia complicated by peritonitis.

Case No. 6—At the same farm and in the next box to Case No. 5, a gray Arab mare became sick the following noon, and I was called again.

This mare suffered from severe violent spasmodic colic and was throwing herself from one wall to the other. Diarrhea with offensive smell, without blood, was profuse. The gums and eyes were not deeply congested. I at once suspected anthrax and reported both cases by telephone to the officials of the Alexandria Veterinary Service who sent a veterinary delegate, in addition to a private veterinary practitioner

whom I called in consultation. Awaiting their arrival, I gave the mare 20cc of anti-anthrax serum, all I had available—and the violent colic subsided after one hour. When the two veterinary surgeons arrived they politely agreed with my diagnosis (however, one of them later told the Director of Municipal Veterinary Service that he did not think it was anthrax). The colic returned on the evening of the same day as the amount of serum injected had not been sufficient. No more serum was available at the time, and the mare died in a semi-coma the next day. Blood taken before and after death was negative to anthrax by film and culture.

The municipal authorities, both veterinary and medical, took up the case; the blood of the mare was found negative to anthrax by both culture and animal inoculation.

Water and food material on the farm were also examined by the municipality, with negative results.

Case No. 7—At the same farm, about 18 days following Case No. 6, a thoroughbred bay mare developed severe spasmodic colic. The nearest available veterinary surgeon was called and gave her a colic drench; unfortunately she broke the glass bottle on drenching and slightly injured the head groom's finger. Early next day I was called. I requested another private practitioner to accompany me for consultation. We reached the farm about 11 a. m. and found the mare showing signs of asphyxia and apparently in great pain, wandering around the box. About 10 minutes later she dropped dead.

The carcass was taken away for municipal post-mortem examination. On autopsy the municipal veterinarian found the brain congested, and the caretaker having told him that about 30 days previously a stray dog had been found on the farm, he suspected rabies.

At the same time the blood was examined and was found negative to anthrax.

The brain was sent to the Anti-rabies Institute in Cairo and it was intra-cranially inoculated into rabbits which kept well and died without paralysis after 88 days (negative to rabies).

Case No. 8—In January, 1940, in Cairo, a colleague called me to inspect a section of a spleen of a mule which had died suddenly with blood negative to bacteria. The section revealed organisms indistinguishable from *B. anthracis*.

Discussion

Clinically all the cases were more or less alike—the first three cases responded to anti-anthrax serum and recovered—before death large amounts of blood seeded were negative. The three cases in Alexandria were not treated with anti-anthrax serum and they all died. Blood cultures and blood inoculation were negative.

The predominant symptoms in the horse are persistent spasmodic colic and injected mucous membrane of mouth and eyes. When the chest is first invaded there is difficult breathing, almost dyspnea and profuse nasal and salivary discharges. Death occurs in one to three days. Large doses of anti-anthrax serum in the horse are curative. The possible explanation for disappearance of the anthrax bacilli is probably due to the resistance of horses to anthrax; the body cells attack and destroy the anthrax bacilli before the animal dies and toxic material liberated from the dead bacilli cause toxemia and death of the attacked horse and if inactivated or neutralized with large doses of anti-anthrax serum, the animal recovers. Or quite possibly the organisms become localized, for example in the spleen or lymph glands in the horse.

Summary

The symptoms mentioned are the prevalent diagnostic means of anthrax in the horse.

Before or after death of horses with anthrax the anthrax bacilli are in most cases not present in peripheral blood, and searching for them in lymph glands or internal organs is advisable before definite decision is made.

The fact that the origin of infection could not be traced, may possibly support the view that horses carry anthrax spores in the bowel, which become virulent when the animal's condition is lowered.

Swine Dysentery*

By J. H. MURPHY, Paris, Illinois

SWINE dysentery is an acute infectious disease of swine characterized by elevated temperature, prostration, and bloody diarrhea which contains gross blood, mucus, particles of croupous exudate and at times practically free blood.

This disease has been described by veterinarians as infectious colitis, hemorrhagic enteritis, swine typhus, and paratyphoid. By the laity it is sometimes called bloody diarrhea and Dakota disease.

Although this disease has been described in veterinary literature during the past 20 years, it is only during the last five years that it has become prevalent in eastern Illinois. Nearly all the outbreaks can be traced to the purchase of hogs at community sales or public stock yards.

No statistics are available concerning the losses, but the disease has become so prevalent, destructive, and difficult to control that it has caused alarm among live-stock owners all over the state.

The disease seems to be less prevalent in summer, but it occurs during the entire year. The mortality varies greatly, depending upon the virulence of infection, the weather, and other conditions under which the hogs are maintained. If conditions on the farm are such that it is impossible to control, by sanitation, the intake of infection, or if no effort is made to follow sanitary principles, death losses may be 90% or more.

In some herds that are kept on contaminated premises, pulmonary complications result, presumably from inhalation of dust that has become contaminated by fecal discharges of sick animals. Very few can survive this complicated infection.

Field observations indicate that swine of all ages are susceptible to swine dysentery. Very young pigs seem to have less resistance to the disease than older ones. Any condition which lowers the resistance, such as shipping, sudden changes of temperature, infestation with parasites, or lack of proper nourishment increases the susceptibility to it.

It appears quite definitely established, both from field and test observations, that swine dysentery is transmitted by ingestion of infective material. The disease may be produced experimentally by feeding intestinal tissue from affected pigs to normal ones, according to laboratory workers.

The experimental cases were confined to several pens in a barn. In the same barn, but in other pens, non-infected pigs were kept for five weeks without infection appearing; but when the normal pigs were placed in the infected pens they developed the disease.

This experience is noted in the field also. The disease does not normally spread from farm to farm unless it is carried there by a diseased animal.

Other farm animals appear to be immune. Horses, calves, sheep, chickens and dogs have been kept on infected premises without ill effect.

These observations bring up some points that should be emphasized: (1) that the disease is transmitted by feeding affected material and by exposure to infected premises, (this is evidenced by infection being so frequently contracted by hogs passing through public stock yards) and (2) that new additions to a herd may be a means of transmission.

The period of incubation in field cases is four to seven days.

The etiological factor has not been established definitely. A variety of micro-organisms—bacterial and protozoan—have been identified with it, but it has not been determined which is the primary cause and which is secondary.

The diagnosis in the field is based upon symptoms and lesions. The first symptom noticed is a disinclination to move. When the pigs do get up, every movement shows

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acute distress. The temperature varies from 104° to 106°F. There is no inclination to eat. Very soon diarrhea develops, and the hind legs and tail become soiled with feces, which later is tinged with blood and croupous exudate.

Some animals die suddenly or after two or three days' illness; others linger from seven to ten days or longer. In the later stages of the disease there is pronounced weakness and prostration.

In the early stages, post-mortem findings are hemorrhagic enteritis, particularly of the cecum and colon, with gross free blood in the lumen of the intestine. Later, caseous necrosis develops in the mucosa with considerable thickening of the intestinal wall. Usually there is a severe gastritis, and the lymph nodes of the mesentery are congested and swollen. These are the primary lesions; cystitis, peritonitis, pneumonia, etc., are frequent complications.

Differential diagnosis is a comparatively simple matter, as this disease is essentially characterized by profuse diarrhea and severe inflammation of the cecum and colon.

Practically all the herds in which dysentery has been present had previously been immunized against hog cholera.

Since nearly every outbreak can be traced to purchase of feeders, prevention lies in the assurance that the animals purchased are not affected with the disease at time of purchase, or that they have not been exposed to infection. New purchases of hogs, therefore, should be quarantined for a sufficient length of time to be sure that no contagion is present, before adding them to a healthy herd.

If the disease becomes established on a farm, the chief measure of control is sanitation. Details of sanitary measures to be employed vary according to conditions on the farm, and weather conditions. During February and March the most difficult sanitary problems are presented because at that time the weather is usually cold, farm lots muddy, and there is little sunshine; therefore, the problem of controlling intake infection is increased.

Non-infected hogs should be removed to clean, uncontaminated lots. All bedding soiled by sick animals should be removed at once and destroyed. Feeding and watering utensils should be kept clean. Feed should be nourishing, and a plentiful supply of clean fresh water available at all times.

Animals dead of this disease should be disposed of immediately by burning, by burying four feet deep and covering with lime, or by disposal to a licensed rendering plant.

Premises where sick hogs have been kept should be cleaned thoroughly and disinfected to prevent harbored infection.

Pig Vaccination Problem

Question at Eastern Iowa Veterinary Association Meeting.—A farmer has 50 seven-week-old pigs, 25 five-week-old pigs, and 25 three-week-old pigs, all suckling immune sows. The three divisions of swine occupy separate parts of the same hog house and are pastured in separate but adjoining pastures. He desires to immunize each group at the proper time, but he does not wish to take further chances with the seven-week-old pigs. He has heard that pigs three or five weeks old cannot be solidly immunized while nursing immune sows. He asks his veterinarian if it is safe to treat the older pigs, leaving the younger pigs untreated until weaning time, and continue unaltered the housing and pasturing of the respective groups. How should the veterinarian advise this owner?

Discussion.—The inquiry raises the question of developing solid immunity in three-week-old pigs nursing immune sows. It was agreed that a safe immunity up to market age, of six to eight months, can be expected in pigs immunized at this age. It was recommended that a large dose of virus (5cc) be given the younger pigs. The answer that seemed to meet general approval was to vaccinate immediately all the pigs, marking each of the youngest group, and to instruct the owner definitely to dispose of them for slaughter at an early age. It was further suggested that if any of the three- and five-week-old pigs should be selected for breeding purposes, they should be retreated with serum and virus when they reach a weight of 100 pounds.

Recent Materia Medica
VII. Nicotinic Acid (P-P Factor)

By PROF. VICTOR LEWITUS
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THE human syndrome known as pellagra, though widely publicized only within the past few years, has been recognized for over two centuries. Gaspar Casal (physician to Philip V of Spain), as early as 1735, referring to the condition found in Asturian peasants as "Mal de la Rosa," ascribed the symptoms to improper diet, the ingestion of maize. About one hundred years later, Marzari postulated the startling new theory that corn, the principal food of Italian pellagrins, probably was the cause because it did not furnish proper amounts of essential food elements. But the medical scientists of those days were not ready to accept such "theorizing." The term pellagra, a corruption of the Italian "pelle agra" for "rough skin," was introduced into medical circles by Frapolli in 1771. In the eastern United States, the disease was first reported around 1863, but its prevalence in the South was not recognized until the year 1907. Originally ascribed to various causes, such as mouldy corn, toxins, infections and dietary deficiencies, it is only within the present generation that all other causes except deficient diets have been eliminated.

Nicotinic acid was first prepared synthetically by Weide in 1873. Although, as far back as 1911, Funk had discovered that nicotinic acid is an important constituent of rice and yeast; and Suzuki independently discovered the substance in rice in 1912, little therapeutic importance was attached to these observations at that time. It was in 1914 that Goldberger with his coworkers began his classical research into the cause of the dreaded disease with a view to discovering its cure. Observing the similarity between spontaneous blacktongue in dogs and pellagra in men, he initiated experiments which ended successfully in the attainment of his goal. Penetrating the deep South to find the remedy for the scourge which affected the poor of that region, and after many years of discouragement, he pointed his finger at the actual cause. Most dramatically, he showed that when the ordinary diets of these peoples (e.g., salt pork, corn meal, and molasses) was supplemented with fresh foods (e.g., milk, meat, etc.) prevention or cure was possible. Chittenden and Underhill, in 1917, were among the first to substantiate Goldberger's findings by producing experimental blacktongue in dogs as a result of diets closely resembling those which were capable of causing pellagra in men. Curative diets were also formulated by them for the canine condition. For about 20 years thereafter, much confusion obtained in the identification of the pellagra-preventive factor; in fact, many modern texts still refer to vitamin G or B_2 as the P-P factor. In 1937, the work of Elvehjem, Madden, Strong and Wooley demonstrated the effectiveness of a certain fraction of liver extract (nicotinic acid amide) which had been previously found to be a prophylactic and curative agent of canine blacktongue. It was this finding which stimulated Spies, Cooper and Blankenhorn to employ nicotinic acid as a cure for pellagra in humans. From this point on, the use of nicotinic acid or nicotinic acid amide has been employed routinely in the treatment of either the human or the canine condition. There are certain other complicating symptoms in lower animals as well as man which, however, may require the administration of additional factors of the vitamin B complex (other than nicotinic acid), such as riboflavin or thiamin, in order to facilitate a complete cure.

Sources

Nicotinic acid, usually in the form of the amide, is found in liver, yeast, meat, kidney, fish, milk, wheat germ, soya beans, peas, beans, egg yolk, tomato, spinach, kale, cabbage, whole rice. Raw beef liver contains about 25 milligrams of nicotinic acid per one-quarter pound (human daily require-

ment). Synthetic forms are nicotinic acid, nicotinic acid amide, sodium nicotinate, nicotinic acid diethylamide.

Chemistry and Properties

Nicotinic acid has been isolated and also synthesized. It is chemically Beta-pyridine carboxylic acid, having the formula $C_6H_5O_2N$ or C_5H_4NCOOH. It is now official in the 2nd U. S. P. XI Supplement (1939). It consists of white crystals or crystalline powder which is odorless or has a slight odor. It sublimes, and has a melting point of 234° to 237°C. One gram dissolves in 60cc of water at 25°C., but it is freely soluble in hot or boiling water and in boiling alcohol, also in aqueous solutions of alkali hydroxides and carbonates, but is almost insoluble in ether. It is acid to litmus paper, is stable in air, non-hygroscopic, and may be autoclaved in solutions without loss of activity. Nicotinic acid should be stored in tightly closed containers. The substance is prepared synthetically either by the oxidation of quinoline or the oxidation of nicotine (hence the name "nicotinic acid"), using nitric acid or potassium permanganate. Nicotinic acid amide, $C_5H_4NCONH_2$, is a white, crystalline, slightly deliquescent powder, with a faint aroma, melting at 129 to 131°C. It is soluble in water, alcohol and glycerine. It is referred to as "nicotinamide" at times. Sodium nicotinate, $C_5H_4NCOONa.H_2O$, is similar in properties to the acid, but is much more soluble. It represents 71½% of absolute nicotinic acid. The diethylamide resembles the amide, but has been employed for its cardiovascular and respiratory stimulant effects. Studies with picolinic and isonicotinic acid (both isomers of nicotinic acid) indicate these to be less efficient than the original substance. However, some recent studies by Bills, McDonald and Spies point to the possible value of pyrazine-2,3-dicarboxylic acid as a substitute for the parent substance.

Standardization and Assay

There is at present no officially accepted unit, the activity of a product being expressed in terms of weight (milligrams of nicotinic acid per gram of substance). The canine blacktongue curative test is employed, using crystalline nicotinic acid as the standard reference substance.

Symptoms of Deficiency

Since blacktongue is considered to be the canine analogue of pellagra in human beings, both pellagra and blacktongue symptoms will be described.

The dog has made great contributions to human welfare in the field of medicine and therapeutics. Not the least of his contributions has been a better understanding of human pellagra and its therapy through investigations of the analogous canine blacktongue

Pellagra.—The disease usually develops over a long period, hence may become complicated with other dietary deficiency conditions such as ariboflavinosis and thiamin deficiency. Pellagra particularly affects three systems: the dermal system, the gastrointestinal system and the nervous system. It may occur in any race, at any age, and usually is characterized by seasonal recurrences and relapses. Onset of symptoms is gradual and insidious. There is loss of weight and anorexia at first, with loss of muscular strength, especially in the legs. Changes in the skin are inconstant, but if they occur take the form of symmetrical lesions at any point on the body but particularly the feet, hands, wrists, knees, elbows, and any other part of the body which is subject to irritation. At first an erythema resembling sunburn exists, which later changes to a deeper pigmentation or bronzing, and the texture is rough and horny. In the digestive tract, the first signs

are found in the mouth, throat and on the tongue where inflammatory conditions are commonly encountered. Later the tip of the tongue becomes swollen and deep ulcers develop (also on the sides), with increased swelling as time goes on. The inflammation travels to the stomach where a similar effect on the mucous membranes exists, and a burning sensation is experienced. An achlorhydria is often observed, and severe diarrhea also is quite common. Nervous symptoms include irritability, headache, dizzy spells, paralysis of the extremities, etc. In more advanced stages there may be spastic gait or other similar movements, and ataxia due to cord degeneration. There finally occur mental depression, confusion, delirium, hallucinations, and (in the absence of therapy) the individual may become insane. The prognosis is grave if the condition is discovered too late.

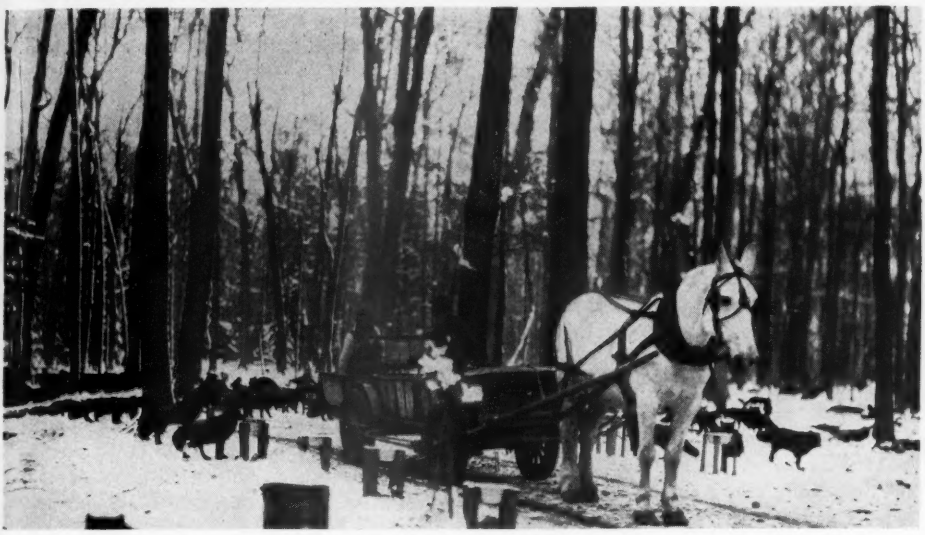
Blacktongue.—Although blacktongue is found more frequently in hounds, setters, pointers, and collies of the Southern states, it often occurs in the Northern regions regardless of the breed. Chittenden and Underhill in 1917 described the symptoms as follows:

> The onset of the pathological symptoms is very sudden. Usually the first abnormal manifestation is a refusal to eat and examination will reveal nothing to account for the loss of appetite. The animal lies quietly in its pen and is apathetic. After continued refusal to eat for a day or two, the mouth of the dog will present a peculiar and characteristic appearance. The inner surface of the cheeks and lips and the edges of the tongue are so covered with pustules as to give the impression of a mass of rotten flesh. The odor from these tissues is foul and almost unbearable. When stroked with absorbent cotton the mucous lining of the mouth comes away in shreds. Intensive salivation is present. The teeth appear to be solid and normal. A bloody diarrhea is present, attempts at defecation being very frequent and resulting in the passage of little more than a bloody fluid of foul odor. Death usually results without any particularly striking features.

It is interesting to note that Goldberger, Tanner and Saye summarized their findings as follows: "the acute development of symptoms following immediately on violent exertion . . . . the rapid course to a fatal termination . . . the history of dietary restriction during a period of about six weeks immediately preceding the beginning of the attack . . . the history of a similar attack in the same animal the year before, following a similar restriction of diet . . . . the striking lesions of the mucosa of the lips, floor of the mouth, and undersurface, tip, and margins of the tongue, and of the cheeks." It should be noted that there is usually extreme emaciation, loss of weight, dehydration, and (e. g., in spaniels) a temperature of 103°F.; the pulse is generally weak and thready. The blood picture is that of anemia with a low erythrocyte count.

A condition that is sometimes found outside of the blacktongue belt, and that is at times confounded with blacktongue in dogs, is uremia. Olafson of Cornell has described some important differential features. Although there are certain symptoms common to both diseases, such as dehydration, there are numerous differences. In the case of blacktongue the striking vermillion tint of the mucosa of the cheeks and floor of the mouth is practically specific. In passing it should be noted that in mild or aborted cases, the tongue lesions may not appear at all; in fact, do not occur until the attack is well advanced. Autopsy shows pronounced injection of the meninges, intestinal mucosa is congested, usually exhibiting submucous hemorrhage with extravasation of blood into the lumen. The rectal mucosa also is deeply injected, showing patches of necrotic tissue superficially. The spleen is swollen and mesenteric lymph glands are enlarged. In uremia, most cases follow an acute or chronic interstitial nephritis. It appears that cases are limited mainly to middle-aged or older dogs. In chronic uremia, there is a catarrhal or ulcerative stomatitis which gives the dog's breath a urine-like odor, due to acidosis; which is quite in contrast with the foul or fetid odor characteristic of blacktongue. The pulse is full and regular, and toward the end the temperature is subnormal. Acidosis is characteristic. Acute uremia presents similar symptoms. On autopsy, differences are more definite. Uremia shows

prominent hemorrhage in the mucosa and submucosa of the stomach; the endocardium of the left auricle is usually ulcerated; and the kidneys show distinct degeneration.



This winter scene depicts the feeding of foxes on the Fromm farm. Much research work on nutrition animal disease has been and is being carried out in the laboratories maintained by this farm

Function of the Vitamin

Although there is still much that needs to be cleared up as regards the physiologic function of nicotinic acid, a few facts regarding its place in the animal economy have recently been disclosed. The several important members of the vitamin B complex appear to be concerned intimately with enzyme action. Just as thiamin (B_1) is associated with cocarboxylase, and riboflavin with flavoproteins, so is nicotinic acid or its amide a component of both cozymase I and cozymase II, both of which are important in a large series of oxidation mechanisms in the body. Kohn has pointed out the relationship between nicotinic acid and oxidative-reduction capacity. Spies has pointed out that nicotinic acid is probably not used as such by the body, but more likely is used as a component of some enzyme system in which riboflavin also is concerned. Vilter and others have made estimations of the blood content of codehydrogenases* in pellagrins, and found that in pellagra the coenzyme (codehydrogenase) content was low and could be significantly raised by the administration of nicotinic acid. Subsequently, these same investigators studying leucemia (in which codehydrogenase is extremely low, even as low as 1%) found that a combination of nicotinic acid and riboflavin together with yeast raised the values rapidly, even though the effects were not long lasting. There is good reason for assuming that in blacktongue or pellagra, there is faulty production of coenzyme or codehydrogenase and also defective production of other factors. Following administration of nicotinic acid, the porphyrinuria which is part of the pellagric syndrome due to impaired liver function resulting in the production of coproporphyrin in large amounts, is diminished and the urine approaches normal. In humans, it has been observed that large doses of the acid or of sodium nicotinate produce dilation of the small blood vessels of the skin, followed by flushing, increased surface temperature, itching, and burning

*Dehydrogenases are enzymes which catalyze oxidation of certain metabolites by activating the hydrogen of the substrate. Dehydrogenase is inactive without the presence of a second agent known as a coenzyme or codehydrogenase.

sensations. The sebaceous gland activity is stimulated. Furthermore, especially if the digestive tract is devoid of food, motility is perceptibly increased. The acid is not destroyed on passing through the capillary vessels. Nicotinic acid amide or the diethylamide are not known to cause the same vascular dilatation as does the acid or its sodium salt.

Practical Application

Since Elvehjem's brilliant work in 1937, in which he cured blacktongue in dogs with the help of nicotinic acid, its use in pellagrins has become widespeard. The erroneous notion that riboflavin or other flavins were the anti-pellagrous principles was completely dispelled. Furthermore, associated B-complex deficiencies which had been ascribed to the lack of the acid itself were ruled out since the amide was isolated from liver. Incidentally a similar type of deficiency as that occurring in dogs has been found to exist in pigs and also monkeys.

In mankind the prophylactic requirement of nicotinic acid is about 25mg daily, but for therapeutic purposes the range of dosage required varies enormously, the oral dose being from 50mg to 1000mg daily. Intravenously, from 40 to 80mg daily is the average total dose, to be given in divided amounts. Response is usually rapid if the case has been discovered early enough. The doses for the amide and sodium salt are the same as the acid.

In the case of dogs the response is usually remarkably prompt. However, after several attacks it has been found that the oral lesions clear up but there is failure to gain in weight. Dogs require about 230 micrograms of nicotinic acid per pound of body weight daily. By another method of estimating requirements for dogs, the curative dose for a 20-pound dog has been given as 4.6mg per pound of food. Margolis *et al.* found after studying 26 dogs suffering with the disease, that the minimum curative daily dose was 0.5mg per kg of body weight. Larger doses were equally effective. With 0.2mg per kg the mouth lesions were healed, but gain in weight and return of appetite were delayed. Doses of 0.1mg per kg arrested progress of the mouth lesions but did not prevent loss of appetite and weight. Following proper dosage, the appetite usually improves to normal in one or two days, there is prompt healing of oral lesions, rapid restoration of the gastrointestinal functions, and rapid and progressive gain in weight. Morris and Franklin have recently reported good results in treating Vincent's angina in dogs (fusospirochetal disease) with nicotinic acid. The recommended dose for this condition is 20 to 50mg three times weekly for two weeks, followed by usual hygienic procedures.

In the case of monkeys, Harris has cured the syndrome of "monkey pellagra" with 2.5mg of nicotinic acid per kg body weight. It appears that adult ruminants do not need this vitamin; but calf scours has been reported cured by the administration of it. Lambs have been shown to grow normally on rations which induce blacktongue in dogs.

Pigs on a blacktongue-producing diet suffer loss of appetite, anemia, diarrhea, dermatitis, and the syndrome ends fatally if the animals are continued on the same diet. In fatal cases, the coat is rough and scurfy, with severe dermatitis especially on the ears; and pathologic conditions are manifested in the gastrointestinal tract. In some instances, evidence of capillary hemorrhages in the gastrointestinal mucosa have been observed. Ulceration and widespread necrotic enteritis were evident. Chick and others conclude that the nutritional deficiency leads to reduced power of the mucous membranes of the large intestine to resist invasion by pathogenic bacteria. Davis, Freeman and Madsen have recently reported remarkable response to feeding of nicotinic acid and other B-complex-containing substances (yeast, liver) as a preventive and cure of necrotic enteritis. These workers conclude, as did Chick and his co-workers, that infectious necrotic enteritis is a secondary complication resulting from invasion of the intestinal wall by commonly occurring microorganisms following nicotinic acid avitaminosis. It is interesting to note that pigs fed corn and groats were protected by supplemental

feeding of nicotinic acid at the rate of 100mg daily; whereas those fed wheat and barley only required 100mg twice weekly.

One of the most recent uses for nicotinic acid is in the prophylaxis and therapy of necrotic enteritis. While this is not a pure deficiency disease, lack of the vitamin is often concerned in its etiology and good results have been obtained in both prevention and cure by the administration of nicotinic acid

It is estimated that 140 micrograms daily per pound of body weight will prevent "pig pellagra." Cures have followed the intramuscular injection of 60 to 100mg nicotinic acid per day, later added in the same amounts to the feed as a supplement.

So-called rat pellagra and chick dermatitis, originally thought to be due at least in part to nicotinic acid deficiency, have recently been shown to be due to other factors of the B complex group.

The use of nicotinic acid in veterinary practice, introduced by Frohring in 1937, is just becoming established; but it should be pointed out that many conditions of obscure etiology may lend themselves to treatment by the whole vitamin B complex, of which nicotinic acid is but a part. Nicotinic acid used in conjunction with other members of the B group, for example, has recently been shown to afford a favorable response in certain encephalopathic syndromes, multiple sclerosis, etc. To paraphrase a current expression, "this may only be the beginning."

Toxicity

It is a common observation that when nicotinic acid is administered to human beings orally or intravenously, a transient sensation of warmth and flushing of the skin occur. This symptom varies considerably with each patient. At times, the reaction will suddenly appear in patients who have been taking the substance for some period of time, and often will spontaneously disappear again. In certain instances, an urticarial rash has been encountered. Up to 1000mg of nicotinic acid have been given to persons without toxic manifestations.

In most animals, nicotinic acid has been found to be only slightly toxic. The work of Chen, Rose and Robbins has shown that dogs can tolerate 1000mg per kg body weight daily for eight weeks. The same workers found that a 2000mg dose per kg would cause bloody diarrhea, convulsions, and death in the dogs within a period of 19 to 20 days. Mice have been found to tolerate the drug intravenously in doses up to 500mg per kg body weight daily, for a period of four weeks. Solutions of the drug in strengths of 1:5000 and 1:2000 respectively, do not influence contractility of strips of intestine or isolated uterus of the guinea pig; and subcutaneous injections of 1% solutions do not produce erythema or necrosis. Unna has also found the drug to have a low toxicity in mice, rats, chickens and dogs. He finds the L.D.50 (dose fatal to 50% of the animals) to be 4 to 5gm per kg after oral or subcutaneous administration in mice. He found that the daily feeding of sodium nicotinate to dogs at the rate of 2gm per kg over a period of 35 days failed to produce toxic symptoms. The drug was excreted unchanged, to the extent of 30%, in the urine after 24 hours. There appeared to be no effect on the respiration and circulation of dogs, cats and rabbits; and in the case of rats there was apparently no effect on metabolism.

Untoward effects of sulfanilamide appear to be minimized by administration of nicotinic acid.

* * * *

There is a high incidence of pellagra in Egypt, the Balkan countries, the Soviet Union, Italy, Spain, and the United States. In the United States as many as 400,000 cases have been reported annually. It has been stated that 10% of the inmates of the asylums in the southern part of the United States have been admitted because of their pellagrous condition.—*O. L. Kline.*

Treatments for Mastitis in Sows

Sulfanilamide, ½gr per pound weight the first day and ¼gr daily for three days thereafter. Administer the daily portion of the drug in three doses. Results have been good. The pigs must be fed artificially for two to four days or they will starve.—*Bryant.*

A heavy dose of saline laxative and ice packs to the udder for a couple of days will cure 90% of the cases of mastitis in sows.—*Gingery.*

Inject 80 to 100cc of calcium gluconate with an equal quantity of dextrose solution into the tissues at the margin of the udder and into the gland tissue in sows suffering from mastitis and they will be all right in a few hours.—*Ball.*

Convulsions in Pigs Due to Concentrated Diet

A lot of 47 pigs farrowed in October were quite thrifty up to three months of age. Then one was found dead, and a few days later another had convulsions and died. During the next few days more cases occurred.

Autopsy revealed in each case a full stomach, although the pigs had had no feed for 12 or 15 hours prior to death. No parasites were present, and all organs appeared normal. There were some symptoms of a vitamin D deficiency.

The pigs had been receiving feed consisting of a fairly good grade of oats and barley chop, using two parts oats and one part barley, and some ground meal and bone meal. The sanitary conditions were excellent, but the animals were not getting exercise.

The tentative diagnosis was indigestion due to concentrated diet and lack of exercise. For treatment, all food was withheld and a mild dose of saline purgative administered. Forced exercise was given for brief periods. When feeding was resumed, lime water was given in the feed daily, and the owner was instructed to continue exercising the pigs.—*A. T. K.*

Dr. F. H. Kelly, Goldfield, Ia., holding a spleen he has just removed from a pig (carcass shown at his feet). This pig died of hog cholera complicated with what has been termed by Kinsley "anaplasmosis-like disease." Enormous enlargement of the spleen is characteristic of this latter ailment, but only exceptionally does the spleen attain the gigantic size of this one. "Anaplasmosis-like disease" is nearly always fatal.—*Photo by J. S. Koen*

Arthritis in swine (most of it due to swine erysipelas) is becoming so prevalent in eastern Iowa that some veterinarians regard it as the most important disease of swine in their sections.

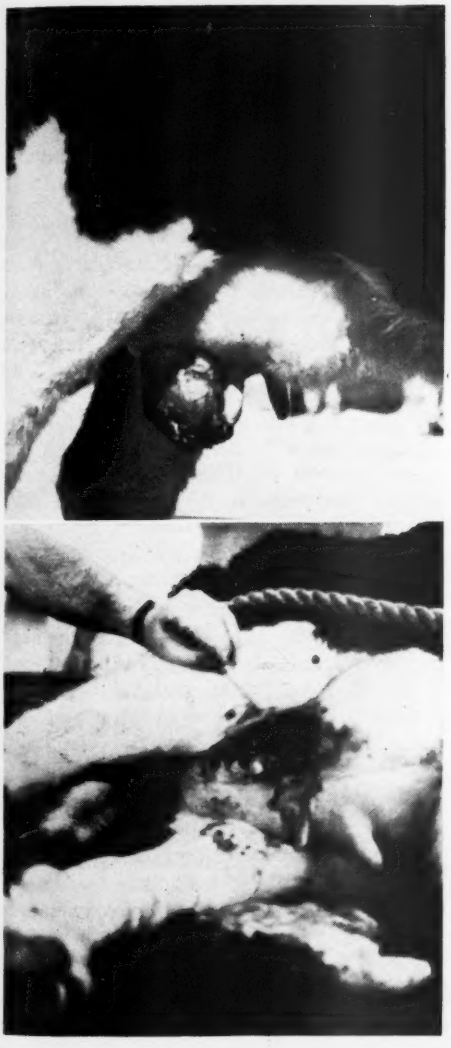
Molasses Rich in Usable Iron

According to Harris, Sunker and Mosher in the *Scientific Monthly,* molasses, a by-product of the manufacture of cane sugar, is rich in the iron which is usable by the body in building hemoglobin. Molasses has about 6.1 parts of such usable iron per 100,000 parts by weight of molasses. Beef liver is second with 5.6 parts per 100,000 and oatmeal third with 4.6. Foods such as apricots, eggs and raisins, often listed in anemia therapy diets, contain only about 2/3, ½ and 1/3, respectively, as much usable iron as does molasses. Spinach contains only 0.5 parts per 100,000.

Recent medical studies have shown that more than 40% of infants are anemic and the blood of as high as 70% of adult women is deficient in iron. Few individuals have absolutely normal blood. Thus nutritional anemia is more prevalent than previously suspected.

Gangrenous Mastitis

May 2, 1940, a three-year old Holstein cow with a large cheesy mass protruding from the right posterior quarter of the udder was presented for treatment. The cow had freshened ten days previously. The udder at that time showed extensive fibrosis, and the milker observed flakes and blood in the milk. A small ulcer formed, lateral and posterior to the right rear teat and gradually became larger until at the end of four days it looked as is shown in Fig. 1.



The animal was placed in left lateral recumbency on the operating table. The cheesy mass was removed in its entirety with a little traction. The process had been completely walled off and the other three quarters were apparently normal. Inside the cavity seven or eight enlarged and thickened stubs of blood vessels protruded from the dorsal surface. They were ligated and excised. A gauze pack soaked in camphor-phenol oil was placed in the cavity. The pack was removed the following day and the cavity was flushed with a 2% solution of potassium permanganate. The next day the cavity was again flushed with potassium permanganate and the area was sprayed with camphor-phenol impregnated oil. By this time the opening was reduced to two inches in diameter and the patient was discharged.

A. O. MITCHELL.

Osborne, Kans.

Interstitial Emphysema in a Horse

On the evening of July 14, 1940, in the practice of Dr. E. W. Meads at Claremore, Oklahoma, we were called to examine an eight-year-old bay gelding with the following history:

Four days previously, the horse gained access to an open bin of wheat and had eaten excessively. The next day the owner noticed that the horse was developing laminitis and stood the animal in cold water for two days. On the morning of July 13th, one of the farm laborers took charge of the situation and decided that the horse needed a laxative. He attempted to drench the horse with a quart of linseed oil poured through the nose. The next morning, the animal was in considerable distress, and when we examined him, he showed pronounced symptoms of gangrenous inhalation pneumonia: accelerated pulse, elevated temperature, severe dyspnea, and rales over an extensive area of the thoracic cavity. The breath had a disagreeable, fetid odor. The laminitis was slight.

No treatment was administered. A very unfavorable prognosis was given, but the owner was advised to stable the horse in a small stall and allow access to water and a mildly laxative feed.

The following morning the owner requested another examination, as the horse

The patient as it appeared on July 18th

appeared "puffy." We found that the pectoral and cervical region, as well as the region of the angle of the mandible, were infiltrated with air. The swellings were crepitant upon palpation. The pneumonia symptoms were now less severe, although respiration was labored and difficult.

An examination on July 18th revealed that the air infiltration had progressed upward to the back at the withers and could be felt under the mane and on the poll. The pneumonia was in a stage of lysis, so a more favorable prognosis was given. By the end of three weeks the animal again appeared normal, although much of the lung was apparently atelectic, as the horse showed dyspnea after mild exercise.

This condition is a logical sequel to gangrenous pneumonia, but is not commonly observed since most animals succumb to the pneumonia before the emphysema develops. Forced respirations cause the rupture of large vesicles in the lungs, permitting air to escape into the thoracic cavity, from which it escapes through the thoracic inlet into the subcutis of the pectoral region. From there it ascends to the top line and may be found subcutaneously from the poll to the base of the tail.

R. B. Koger, K.S.C. '41
Belvidere, Kansas

Carcinoma of the Parotid in a Saddle Mare

June 15, 1940, a call was made at Independence, Missouri, to see a seven-year-old saddle mare affected with a swollen parotid gland. The swelling had started several days previously, and was gradually becoming more extensive. The horse had been eating, and defecation was regular. In other ways the mare's actions and functions were normal.

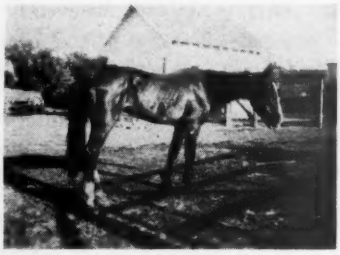
Upon examination, temperature, pulse, and respiration were found to be normal. The swelling, just behind the posterior border of the mandible and ventral to the ear, on the left side of the head, was warm and sensitive on palpation. It was irregularly firm with a few soft spots and hard masses. A parotitis was suspected, but diagnosis was withheld. An organic iodine compound administered orally was prescribed for a five-day period.

When a return visit was made five days later, the swelling had increased a great deal, and the condition of the horse was failing rapidly. The pulse had increased, although the temperature showed no change. The animal's appetite was normal, but there was still a loss in weight. A cellulitis was noted in the hind legs from the hocks down to the third phalanges. A mild counter-irritant (tincture of iodine) was applied to the parotid swelling in an attempt to localize it. Hot applications were prescribed for the swollen limbs.

After several days of application of tincture of iodine the parotid enlargement localized. Emaciation was more pronounced, although the appetite was still good. The horse was unable to masticate normally because of increased size of the gland. An exploratory puncture was made into the affected tissue, but no pus was found as had been expected. On incision a hemorrhagic mass slowly exuded. A section of the tissue was obtained along with the exudate, to be sent to a laboratory for histologic examination. The cavity was packed for drainage purposes, with gauze soaked in B.I.P.P.

Laboratory Report.—The section through the parotid region showed most of it to

have undergone necrosis. Considerable hemorrhage was also present. Scattered about in the tissues were masses of purple-



As the condition progressed, the mare became emaciated and the swelling of the parotid gland increased

staining bacteria and an undifferentiated growth of small, dark, irregular semi-autolytic cells. An occasional weak attempt at alveolar formation was seen, but secondary infection in the tumor made it difficult to analyze.

Diagnosis.—Anaplastic carcinoma of the parotid, with extensive secondary infection and autolysis.

The owner was advised that euthanasia was desirable.

On an autopsy by Dr. E. W. Theiss the laboratory diagnosis was confirmed and everybody was satisfied.

MARTIN KADETS, K.S.C. '41

Natick, Mass.

Some Useful Prescriptions

In treating choke in horses, I give one to two drams of hydrogen peroxide solution in capsules. In cervical choke of a few days standing, I inject 20cc of the peroxide directly into the mass with a hypodermic syringe and massage it.

In treating dislocation of the patella, or cramp as it is commonly called, I inject 20cc procaine solution into the ligaments and cast the horse, roll it over on the side injected, and force it to rise; the cramp is gone.

For cardiac disturbance I give one dram of fluidextract of digitalis in a capsule. The patient should be kept quiet, being watered and fed in the stall, and given a good tonic three times a day on the feed. A tonic that I use is:

℞

Strych. Sulph.	gr. x
Tr. Ferric Chlor.	ʒiii
Alcohol	ʒiii
Water q. s.	ad Oi

M. et Ft. Sol. Dispense with shake label. Sig. Tablespoonful t. i. d. on feed.

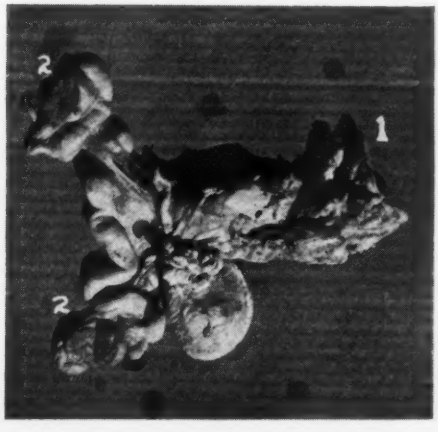
I started giving large doses of digitalis many years ago. A heart specialist once told me that it is better to give one heroic dose of digitalis than to give small doses over a period of time; but the patient must be kept very quiet to give the heart muscles a chance to rest.

G. F. YAGER.

Sauk Center, Minn.

HERMAPHRODITISM IN A PIG

While engaged in inspection work at a slaughterhouse, my attention was drawn to a 70-pound, nine-month-old pig with the external genital organs of both sexes. There was a sheath (1) containing the rudiments of a penis, a well-developed clitoris, the normal 12 mammae, and a vagina. On slaughtering the animal I found one testicle situated at the end of each fallopian tube, both ovaries being absent. There was a well-developed epididymus. The vulva, vagina, and os uteri were normal. The testicles (2) were somewhat flattened, measuring 1½ inches across. In the photograph they are incised to show the structure. This is the first time I have seen a case of hermaphroditism in a pig, although the condition is common in some other animals.—*W. M. Nielsen, Cessnock, N. S. W., Australia*



Hematoma of the Brain of a Cat

A four-year-old female cat was presented at the hospital with the following history: the animal had been away from home the whole preceding day and when it came back crawled under a porch, where it remained until coaxed out by the owner. He noticed that the cat carried itself abnormally, and refused to eat.

The animal walked with a rather panther-like slink, with the rear legs greatly flexed and had very poor control of the hind quarters. It circled constantly to the left. The pupils remained dilated at all times. On further examination it was found that the senses of hearing and smell were impaired also. The animal appeared to be in no pain.

Our preliminary diagnosis was pressure on the frontal lobe, due to concussion, to tumor, to ear mites or to rabies. The latter was rapidly eliminated, since the animal had been closely confined until a day previously. Upon otoscopic examination no ear mites were found. Thus our diagnosis was narrowed down to pressure on the frontal portion due to a blow or to a tumor. We explained to the owner the probable condition and also the difficulties of an operation in this area. Since he desired to save the cat if possible, we did not recommend euthanasia but attempted to relieve the condition by surgical methods.

A search for literature on brain surgery in the small domestic animal was made without avail. We were of the opinion that the trouble lay in the right frontal portion of the brain, which controls the motor and sensory nerves. According to Dukes: "Much evidence is available to show that the cerebral cortex of mammals posseses a bilaterally situated area whose electrical stimulation causes muscular movements on the opposite side of the body. This is the so-called motor area. In general there is a direct relationship between the size of the motor area and the number and complexity of the skeletal muscle movements of which the animal is capable. In Carnivora it is of an intermediate size, and histological and experimental studies indicate that the motor area is situated in relation to the crucial sulcus. Because of the direct connection between the motor area and the final common paths, the former must be concerned in the functional control of the skeletal muscles." We assumed therefore that the motor area as well as the visual and olfactory areas was involved.

The skull of the cat is of the same type as that of the brachycephalic dog, with the frontal sinus extending well back of the orbits and divided into small anterior and larger posterior compartment confined to the frontal bone. The site of the operation in this case is bounded anteriorly by the perpendicular and cribiform plates of the ethmoid bones; dorsally by the frontal and parietal bones; ventrally by the presphenoid and postsphenoid bones; and laterally by the frontal and parietal bones.

Surgical Procedure.—The animal was carefully weighed and given 1.2cc of nembutal intraperitoneally. An assistant then clipped the entire area of the skull with the surgical clippers and washed it thoroughly with alcohol. A sterile shroud was secured over the site of operation by means of several skin sutures. A median incision was made through the skin with the scalpel, extending from in front of the supraorbital process anteriorly, to the parietal crest posteriorly. An oblique incision was then made in the skin at the anterior point, extending to the base of the ear, and the skin was reflected, grasped and held by the assistant with two vulsellum forceps. The periosteum was then incised around the borders and pushed back. With an electric rotary bone saw, the frontal and parietal bones were severed on the median line. One oblique cut was made from the anterior point and another from the posterior point to form a triangle with its vortex near the base of the ear. A small bone chisel was inserted in the anterior angle and slight pressure applied until the triangle of the bone was lifted up. The bone was then grasped with forceps and carefully lifted and removed, exposing the frontal sinus and frontal lobe. Upon removal of the bone about 10cc of dark blood oozed forth.

Such dark blood is usually due to decomposition of the hemoglobin to form methemoglobin, a condition found in hematomas of long standing. We concluded that it was this hematoma which had caused the pres-

sure on the frontal lobe. After the field was cleaned with a sterile sponge the blood ceased to ooze and the slight amount of hemorrhage which now appeared was arterial blood of a different color.

A sterile dry gauze pack was applied into the frontal sinus and over the region where the bone had been removed. The skin was sutured together with eight single interrupted sutures, using No. 0 20-day sterile gut. The anterior and posterior ends of the pack were left protruding. The area was again thoroughly washed in alcohol, the shroud removed, and the animal returned to its cage.

Within 24 hours the cat was eating lightly. When examined it took a few steps in a straight line and appeared to have the use of its senses. It was discharged from the hospital the following day, as it was felt that the personal care of its owner would be of value during its convalescent period. The gauze pack was removed on the fourth day following the operation. When a final examination was made, one month after the operation, the results were gratifying. The animal has full use of its limbs, turns in either direction, and the senses seem to be functioning normally.

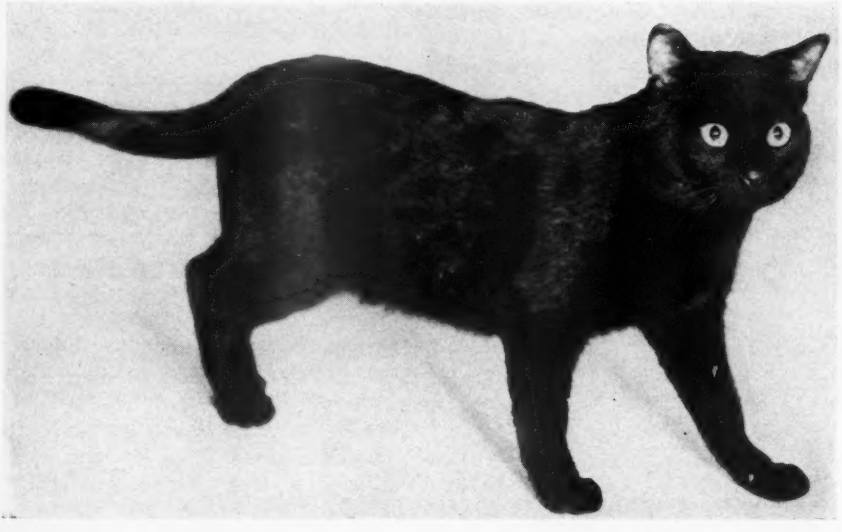
G. S. McKee, D.V.M. and
R. James Foley, O.S.U. '41
Washington, Pa.

Convulsions and Torticolis in a Cat

History.—The patient was a male yellow tiger alley cat, four and one-half years old. He had seven toes on each front foot, and a slightly crooked neck. He had been found by the owner when about six weeks old and kept as a house pet since that time. His actions during the past 24 hours were given by the owner as follows:

The night of April 29, 1940, the cat vomited and did not eat heartily. The evening before he had been out for a couple of hours and may have eaten something that disagreed with him; probably a lizard. The afternoon of April 30th he slept in a chair for about three hours. When the owner approached and touched him, instead of behaving in a playful manner as usual he tried to get away, upsetting the chair. He then began turning and twisting his head and walking in circles; within ten minutes his eyes began moving from side to side jerkily. He tried to get away from the light, fell when he tried to walk, and was definitely disoriented. After four convulsive attacks of three to five minutes' duration, the animal was brought to the hospital.

Symptoms.—When placed on the observation table, the cat stiffened out in a tonicoclonic spasm resembling that of



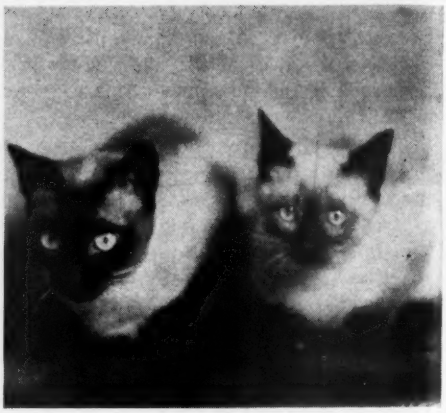
strychnine poisoning. After this attack had ceased, examination disclosed a slight elevation of temperature; symptoms of excitement manifested by fear and restlessness; a severe torticolis, the head being drawn around nearly to the point of the left shoulder; nystagmus, with an unequal dilation of the pupils; and complete incoordination of muscular action, the animal turning to the left and falling over when attempting to walk.

Diagnosis.—The symptoms were indicative of meningitis, but diagnosis was withheld pending further observation. The cat was given one grain of phenobarbital and placed in confinement. No further convulsive attacks occurred, and the following day a tentative diagnosis of meningoencephalomyelitis was given. The prognosis was unfavorable and euthanasia was recommended, but the owner was much attached to his pet and requested that treatment be attempted.

Treatment.—One-half cc of neoprontosil was injected intramuscularly three times daily until a saturation point was reached, as shown by absorption of neoprontosil by the skin, which became red. When this stage was reached, the injections were discontinued and two triple arsenate tablets (strychnine arsenate 1/128gr, quinine arsenate 1/64gr, iron arsenate 1/64gr) were given three times daily. After three days of this treatment, it was discontinued and the neoprontosil resumed.

The cat showed some signs of improvement, but not enough to justify continuance of the treatment, and I again advised euthanasia, but the owner wished the treatment continued. May 7th the animal was discharged with a five-day supply of triple arsenate tablets for home treatment, and instructions to bring the animal back every other day for injections. For these injections the dose of neoprontosil was stepped up to 1cc per injection. May 15th the animal was normal in all respects except for the pronounced torticolis, and not wishing to subject my client to needless expense I suggested that the injections be discontinued.

For the final injection, the dose of neoprontosil was increased to 6cc, of which 3cc was injected in the gluteal muscles of each leg. About two hours later the owner telephoned in great anxiety to say that the animal was having a severe convulsion. The cat was returned to the hospital; on arrival he was panting like a dog and unable to walk. He was given 0.5cc of adrenalin and hospitalized. During the next two days he received no medicinal treatment. May 17th he seemed fairly normal and was sent home with enough triple arsenate tablets for three courses of five-day treatments, with instructions to allow five days to elapse between treatments.



Siamese Cats

The owner reported several weeks later that the cat is in apparently normal health, with an excellent appetite. His equilibrium and orientation are almost normal, although he is not so sure-footed as before, and avoids heights. He does not play as before, and dogs and loud noises appear to bother him.

Comments.—The last convulsion was, in my opinion, the result of anaphylaxis rather than a recurrence of the previous attacks.

The cause of the condition is unknown to me. We have had many similar cases here in San Diego, dogs and cats of all ages being affected. Most animals do not respond to treatment as favorably as this one did.

B. J. ELANDER.

San Diego, Calif.

Dislocation of the Lumbar Vertebrae in a Dog

The beauty of our profession lies in the wide scope of other professions it encompasses. Even chiropractic is included but without the mumbo jumbo with which its devotees endow it. Recently we had occasion to try our hand at this art with very satisfactory results.

The patient, a two-year-old, male, Irish water spaniel, had been hit by a speeding car. At the hospital the animal exhibited a complete posterior paralysis, including paralysis of the bladder. The symptoms resembled very much those of extensive pelvic damage, but since no injuries to the bony structures could be detected by palpation x-ray examination was invoked.

Working on our original premise of a pelvic injury, we began with a dorso-ventral radiograph of the pelvis. The plate revealed no fractures or dislocations, no skeletal abnormalities of any sort. Reluctant to abandon our theory of pelvic injury, we made a second plate of the pelvis, taking a lateral view this time. Again the pelvis appeared entirely normal, but just within the margin of the plate we discovered the seat of injury.

There we found a dorso-ventral luxation between the third and fourth lumbar vertebrae, the vertebrae anterior to the point of luxation being on a higher plane than those posterior to it. To confirm this diagnosis we took a third radiograph, a dorso-ventral view of the lumbar vertebrae on one-half of the plate and a lateral view on the other half. This plate revealed a true dorso-ventral luxation between the third and fourth lumbar vertebrae, but no complicating lateral luxation.

By this time five days had elapsed, during which the animal had no use of the hind limbs and could not void urine voluntarily.

After thorough study of the x-ray pictures we formulated a plan of attack. This consisted of flexion of the entire spinal column by doubling the anesthetized dog up until his nose and tail almost met, simultaneously applying downward pressure on the third lumbar vertebra by pressing on it with the heel of the hand. In the course of this manipulation we could feel a readjustment of the vertebrae at the point of luxation, and upon straightening the animal the prominence of the spine of the third lumbar vertebra had disappeared. Fluoroscopic examination of the site now revealed the vertebrae to be on the same plane, the luxation having been corrected.

Speedy recovery followed this chiropractic manipulation. The following day the animal was able to void urine without assistance and over a period of a week he rapidly regained control of his hind legs.

J. George Feinberg,
R. M. Codd

Norfolk, Virginia

* * * *

Cystic Ovaries in a Bitch

August 10, 1940, a German Shepherd bitch approximately 12 years of age was given a superficial examination at the owner's home in Leedey, Oklahoma. A partial posterior paralysis was evidenced by a slight staggering gait during which the animal dragged the leg as the body weight was placed on the opposite leg. This condition had been present for at least six months, according to the owner. The claws were worn on the dorsal surface, because of this paralytic gait. The left posterior abdominal mammary gland was affected with a tumor which had appeared after a prolonged mastitis, which by frequent milking and massage the owner had brought under control. The tumor was approximately 6cm in diameter. The mastitis had arisen after the animal began a period of lactation preceded by no conception nor parturition.

The mucous membranes, temperature, and pulse were all normal. On palpating the abdominal cavity a hard, painful mass was evident in the lower third in the hypogastric region.

The tentative diagnosis was one or more mummified fetuses, the progressive paralysis being due to pressure on the lumbosacral nerve plexus.

A cesarean section was advised, but an unfavorable prognosis was advanced because of the age of the animal and the apparent progressiveness of the condition. As

the owner said he would rather have the dog destroyed than continue as she was, surgical interference seemed advisable.

The animal was presented for surgery at Oklahoma City after a trip of some 150 miles. The patient was rested that day, and after 48 hours fasting, the operation was begun.

Nembutal was used as the anesthetic, 13.5cc being given intravenously in the external saphenous vein over a period of about 15 minutes. The ventral abdominal wall was shaved and the area prepared for an aseptic operation, using tincture of iodine for a skin disinfectant.

An incision along the median line approximately four inches long was made beginning one inch posterior to the navel. The apparently normal, nonpregnant horns of the uterus were easily seen, showing the diagnosis of mummified fetuses to have been erroneous. The left uterine horn was grasped and drawn up through the incision, and the greatly enlarged left cystic ovary was thus exposed. Homostats were placed on the ovarian ligament, and the ovarian vessels were ligated. The right ovary was removed in the same manner. The uterus was ligated at the bifurcation and removed. A few scattered cysts were present along each uterine horn. The abdominal cavity was examined for other abnormalities, but, possibly because of the great quantity of fat, nothing of importance could be determined. Fifty grains of powdered sulfanilamide were placed in the abdominal cavity, and the incision was closed by interrupted sutures of 20-day No. 0 chronic catgut. The sutures included the peritoneum and muscle. Linen sutures were taken through the skin, using the mattress technique.

As the hemorrhage was negligible up to this point it was decided to remove the mammary tumor. The tumor was completely enucleated, and the larger vessels were ligated as necessary.

The patient regained consciousness approximately six hours after the operation. The following day the temperature was 104°F. The animal drank water, and ate fairly well on the second day. Sulfanilamide (five grains every four hours for 48 hours, followed by five grains each subsequent day) was begun the day following the operation. On the fourth day the patient appeared to be making an unexpected recovery, being able to walk with comparative ease, and in general showing great improvement. However, approximately one hour later depression was evident, and examination revealed that the incision had opened. The animal was immediately restrained, and the wound was cleaned. The abdominal fat had adhered to the sides of the incision, and had thus prevented healing of both muscle and peritoneum.

Cystic Ovaries

The edges of the wound were scarified, and the incision closed with interrupted linen sutures. The patient died that night about 10 o'clock.

On post-mortem examination, adhesions indicative of peritonitis were absent. The left kidney was affected with a slight nephritis of a chronic nature, which is not uncommon in old dogs. However, a small tumor resembling an adenoma or adenosarcoma was present posterior to the left kidney, suggesting that the whole condition may have been malignant in nature.

The immediate cause of death was probably shock due to the second opening of the abdominal cavity. This could have been avoided had the operator taken a sufficient number of closely spaced sutures to insure against the abdominal fat slipping into the incision to prevent healing.

W. D. Bowerman, K.S.C. '41
Manhattan, Kans.

Abstracts

Vaccination of Cattle Against Rabies in Brazil

In heavily infected farms three consecutive inoculations at intervals of less than a year were found to confer useful immunity against natural infection.[62] In lightly infected farms, one inoculation was sufficient to eradicate the disease. Fresh, unattenuated vaccine (24 hours old) given in doses of 20 to 40cc to adult cattle was well tolerated and conferred a sufficiently useful immunity. Vaccine 40 days old was found to be useless. There were 1.5% losses in vaccinated herds within 30 to 60 days after vaccination. Molina suggests that this loss may be explained by the fact that the strength of the immunity conferred depends upon the amount of nervous material in the vaccine. He notes that, in this respect, the larger the dose of vaccine, the more solid was the immunity.

Incidence of Rabies in Dogs and Rats

Surveys were undertaken in Birmingham, Ala., to determine the prevalence of rabies.[63] Five hundred rats were trapped, their brains were removed and pooled, and material from this mixture was used for mouse infection tests. None of the mice developed rabies, and it was concluded that the rat did not play an important part in the transmission of rabies in Birmingham.

Among 11,201 dogs that died or were killed, 352 were suspected of rabies. Of these 352, rabies was diagnosed in the laboratory in 232. Of 533 apparently healthy brains examined to determine the prevalence of rabies among dogs not suspected of having the disease, five were found to be positive.

There was a greater incidence of rabies among dogs owned by negroes than among those of other owners.

[62] Molina, A., 1938. Profilaxa da raiva pela vacinaçao. *Bol. Soc. brasil. Med. vet.* 8, pp. 103-106. Abst. by S. Torres in the *Vet. Bul.* 10:11, p. 840.

[63] Denison, G. A., and C. N. Leach. 1940. Incidence of rabies in dogs and rats as determined by survey. *Amer. Jnl. Publ. Hlth.* 30, pp. 267-269. Abst. by K. T. John in the *Vet. Bul.* 10:11, p. 840.

Control of Bovine Brucellosis in Norway

The national control scheme for the control of bovine brucellosis in Norway came into operation at the beginning of 1935.[64] By the middle of 1939 the disease had been nearly eradicated. In 1935 there were 3,053 known infected herds; by August, 1939, 2,943 (96%) had been freed from infection.

Better Cheese from Pasteurized Milk

Observations of 40 lots of limburger cheese made at a cheese factory employing the methods commonly followed with raw milk revealed that both partial and complete pasteurization of the milk markedly improved the quality of cheese made in July and August from poor quality milk, but not that made in October from milk of better quality.[65] Pasteurization of milk for the manufacture of limburger cheese results in a milder flavored cheese and in a product of uniformly good quality when the proper manufacturing method is used.

Nicotine Poisoning

A solution used to destroy lice (three parts crude nicotine to 50 parts glacial acetic acid in 1000 parts water) was applied to a horse and the animal was covered up; it sickened two hours later with the typical symptoms of nicotine poisoning.[66] Symptomatic therapy was applied and the animal recovered. The same animal was by mistake rubbed with the solution a second time and again sickened, though less seriously. It is recommended that subjects should be carefully supervised after the external application of nicotine; the drug should never be applied all over the body at the same time to animals with very sensitive skins and they should be left uncovered.

[64] Holth, H., 1939. En oversikt over fremgangsmåten og resultatene ved bekjempelsen av cen smittsomme kastning i Norge. *Svensk Vet. Tidskr.* 44, pp. 431-447. Adapted from an abstract in the *Vet. Bul.* 10:11, p. 826.

[65] Yale, M. W., 1940. Factors affecting the quality of limburger cheese made from pasteurized milk. N. Y. State Agr. Exp. Sta. Tech. Bul. No. 253.

[66] Pieritz, 1938. Akute Nikotinvergiftungen bei Menschen und Tieren. *Z. Veterinärk.* 50, pp. 405-413. Abst. by V. Chládek in the *Vet. Bul.* 10.11, p. 879.

The Etiology of Pyometra in Cattle

The literature is cited in evidence of the serious nature of pyometra as a cause of sterility.[67] Schnyder has estimated that from 0.4 to 8.4% of cows in a herd may be found to be suffering from pyometra. On the etiological aspect, the survey of Jaeger is noteworthy. He examined bacteriologically 51 cases and found the following organisms: Pyogenes (13 cases), Trichomonas (10 cases), staphylococci and streptococci (15 cases) and diplococci (four cases). In nine cases no organisms were found. Other workers have noted the occurrence of these cases in which the uterine contents were sterile, and to them Kostner draws especial attention.

The present work is based on the findings in 18 cows which were slaughtered following a history of prolonged sterility and a clinical finding of fluid in the uterus. The data obtained on post-mortem examination are tabulated. The amount of the fluid contents of the uterus varied from 1.5 to 50 liters, but was commonly about 10 liters. In one case only was the smell strongly unpleasant. In nine of the cases remnants of a fetus could be found, and in all cases a corpus luteum resembling that of pregnancy was found in the ovaries. Bacteriological examination of the uterine fluid showed a mixed infection of staphylococci, streptococci and *B. coli* in eight cases. Trichomonas was present in four of these and also in two others, leaving eight sterile.

Material from 10 of the cases was injected intraperitoneally into mice. Although four of these samples had shown bacteria on cultural examination, only two were fatal (in three and four days) for the mice. Kostner suggests that the organisms in the other two cases were of low virulence. To obtain further evidence on the significance of the bacteria, samples of the uterine fluid from three representative cases were introduced through the os to the uterus of eight normal cows in various stages of the reproductive cycle, and immediately post partum. Two of the samples injected had been shown to contain organisms, one staphylococci and streptococci, and the other also *B. coli*, and Trichomonas, yet in no case was any abnormality detected in the uterus or ovary of the injected cows on post-mortem examination six weeks later.

The histological state of the uterine wall of the original cases was studied. It is described, not in terms of an inflammatory reaction, but as resembling an atypical pregnancy, and this is correlated with the presence of a corpus luteum in the ovary.

Kostner's conclusions from his work are briefly as follows: Pyometra, in the type of case he has examined, arises as a result of death of an embryo *in utero*. The uterine contents are at this stage sterile, and are likely to remain so, as the cervical mucous plug is an obstacle to the entrance of bacteria. Autolysis of the fetus and membranes occurs and the uterine contents are reduced to fluid. Emptying of the uterus does not take place as the corpus luteum of pregnancy persists, and inhibits contraction of the uterine wall. The cases which Kostner reports as having sterile uterine contents would appear to have been examined at this stage. If, as may happen, the cervical plug is dissolved, the contents may become infected; but it is emphasized that the initial change is due, not to the organisms, but to the sterile autolysis following on the death of the fetus. The author regards Trichomonas in a different light from the other organisms mentioned, considering it to be capable of causing the initial death of the fetus and so starting the cycle described.

Since Kostner believes in the essential innocence of bacteria in the etiology and course of the disease he describes, the treatment suggested is enucleation of the corpus luteum.

[*Abstractor's Comments.*—(1) It is difficult to reconcile the views expressed by the author of this paper with the conventional accounts of pyometra, and it would indeed appear that, applied to some of the cases described by Kostner, the term is a misnomer.

(2) It is strange that, in an account of a condition amounting to endometritis in the pregnant uterus, no mention is made of Brucella.]

[67] Kostner, 1939. The etiology of pyometra in cattle (Trans. title). *Wien. tierärztl. Mschr.* 26, pp. 225-237, 257-271. Abst. by J. B. B. in the *Vet. Rec.* 52:43, p. 761.

Ammonia Fumigation for Coccidial Disinfection

Laboratory tests showed that ammonia gas used as a fumigant is lethal to coccidial oocysts.[68] A concentration of 25mg per litre was found to destroy 100% of occysts within one hour, and a concentration of 7.7mg per litre to destroy 100% within three hours. The presence of feces has a considerable effect in reducing the concentration of ammonia in the atmosphere, a reduction from 22.5 to 17.4mg per litre having been observed within half an hour in the presence of feces.

Practical tests on poultry houses were carried out as follows: Two houses of 700 cubic feet capacity, and similar in construction and situation, were used. The ammonia was delivered as a gas from a cylinder at the rate of three ounces to every 10 cubic feet capacity of the house, and the resulting concentrations in various parts of the poultry house were determined by estimations on samples of the atmosphere collected in evacuated flasks. Occyst-laden fecal samples of 25gm weight were placed in various parts of one of the houses, in order to test the effect of the fumigation, some of the parts being those thought to be most inaccessible to the gas. In general, the highest concentrations of ammonia attained were found to be far below the theoretical values, and it was observed that they rapidly decreased, owing, presumably, to leakage and to the absorption of the ammonia by the fabric of the house. Subsequent culture of the test fecal samples, however, showed the treatment to have been effective in all except the most inaccessible part, the only samples to escape its action being those underneath a false floor, to which the birds did not have access.

The same procedure was carried out on the other house, except that tarpaulin coverings were used to reduce the leakage. The concentrations obtained were higher and considerably better maintained, the gas proving effective even under the false floor, except for one sample in which the sporulation was 20%.

[68] Horton-Smith, C., E. L. Taylor and E. E. Turtle, 1940. Ammonia fumigation for coccidial disinfection. *Vet. Rec.* 52:48, pp. 829-832.

Italian Veterinary Service

In the Italian operations in the Italo-Abyssinian war preparations were made for the personnel and equipment of the veterinary corps, veterinary services in the field, horse shoeing, reports and statistics, description of the more important diseases of animals, transport of material, and animal transport overseas.[69]

A total of 247 veterinarians was engaged in the war. Animal transport was utilized for practically everything except the transport of troops. About 100,000 transport animals were used, but the exact numbers of each class of animal are not clear. It is stated that 500 horses, 7,000 mules, 2,000 donkeys and 900 camels were bought for transport purposes. It appears that total losses in transport animals were some 30%.

The organization of the veterinary corps changed somewhat during the war, but in general followed the usual system. Animal hospitals, convalescent camps and remount parks were organized. About 36,000 animals were treated for wounds or disease and 25,000 are said to have been returned to duty.

The veterinary corps had to supervise meat supplies for the Italian armies, including the supervision of parks for living food animals, and also of frozen meat which was imported in large quantities.

Shoes for horses were supplied from Italy and were satisfactory, but much trouble was experienced in providing shoes for mules and donkeys. The feeding of transport animals was difficult in that there were numerous cases of colic with some losses. There were also great losses in camels taken into the mountainous interior.

The most important infectious and parasitic diseases of animals during the war were African horse sickness, equine influenza, trypanosomiasis in horses, cattle and camels, piroplasmosis in horses and cattle, mange in horses and camels, and helminthiasis in horses and camels. There were also non-specific conditions such as heat stroke, saddle galls, loss from exhaustion and troubles from faulty acclimatization.

[69] Erban, 1939. Der italienische Veterinardienst in italienisch-abessinischen Krieg. Unter Mitbenutzung der Preisarbeiten 1937-38. Suppl. to Z. Veterinark. 51:10. Abst. by J. E. in the *Vet. Bul.* 10:11, pp. 890-891.

Book Review

Diseases of the Pig and Its Husbandry. *By David J. Anthony,* M.R.C.V.S., D.V.S.M. (Vict.) Cloth bound; 272 pages, 48 illustrations. The Williams & Wilkins Company, Baltimore, 1940. $3.50.

Lest from the title there be a misunderstanding as to the scope of this work, it should be stated that the author uses "pig" as a generic term meaning swine, reserving the latter only as a component of disease names, as swine fever (hog cholera), swine erysipelas, swine pox, swine influenza.

The stage of development of the swine industry with which this British author is familiar and about which he writes is indicated by this statement in the preface: "During the past decade or two with the growth of new 'housing estates' and a variety of other factors, the cottager's pig has disappeared, to be replaced by the mass produced 'herd pig'." In other words, he is discussing a swine industry comparable to that of the United States in the 60's and 70's of the past century. Naturally, the discussion of nutrition and of disease is more up-to-date; indeed, embodies current information on these subjects.

The chief interest of this publication to American veterinarians lies in the contrast between the incidence and course of swine diseases under the conditions of a primitive industry, and their characteristics in the intensive swine industry of this country.

The discussion of hog cholera, the longest in the book, occupies but nine pages and may be assigned to the "button ulcer" stage of the development of knowledge on this subject; that is to say, to the first decade of the present century in this country. Vaccination is dismissed with the following:

> In the United States of America the use of serum-vaccine treatment is popular, serum being injected on one side of the body and a small amount of virus blood on the other. This is known as the "simultaneous method" and is said to have resulted in a steady decline of swine fever in the States, where it has been extensively used.

Owners of healthy herds are counseled to send the healthy animals to slaughter and destroy the ailing and provide a separate attendant for them. Just what the attendant is to do for the destroyed pigs is not stated. An alternative plan is to give the healthy pigs serum alone and save a few of the ailing pigs to mingle with them and thus get a permanent immunity in the "serum inoculated" animals.

Hog cholera is a scheduled (reportable) disease, and handling an outbreak is described thus:

> The reporting to the police does not in any way relieve the owner of his responsibility for the care and maintenance of his pigs, or for the prevention as far as practicable of unnecessary suffering from illness or other cause. The owner is at liberty at any time, before or after the confirmation of the existence of the disease, to have his pigs treated on the infacted premises by his own veterinary surgeon, provided the latter obtains the necessary permit from an inspector of the local authority (generally a police officer) to enter the infected place and disinfects himself on leaving in accordance with the rules set forth on the Notice of Restriction (quarantine) served on the owner.

While not applicable in this country, the plan has obvious points of advantage that we could use.

Infected poultry is not mentioned as a source of tuberculosis in swine. In a long list of poisonings, some of them doubtful, cocklebur poisoning is not mentioned.

The author seems unaware of the vast literature on swine pathology that has accumulated in this country during the last three decades, since he makes no reference to it and further says: "There is a great scarcity of books in English dealing with the pig from a veterinary aspect."

The chapter on deficiency diseases is quite comprehensive and although lacking somewhat in definiteness is nevertheless very satisfactory.

You may obtain any of the books reviewed in this department by sending your remittance of the published price to the Book Department of VETERINARY MEDICINE, 7632 S. Crandon Ave., Chicago, Ill.

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Writing an informal discussion of vitamins in *The National Provisioner*, C. Robert Moulton comments that a vitamin is like the famous "little man who wasn't there," for just as the person in the song saw the little man upon the stair only when he *wasn't* there, so chemists discovered vitamins by their effects on animals fed foods which did not contain them.

■

A 32-page quarterly, the *M. S. C. Veterinarian*, made its initial bow last month. Sponsored jointly by the student chapter of the A. V. M. A. and the alumni association of the veterinary division, it is edited and managed by veterinary students at Michigan State College. The subscription price is $1.00 per year. . . . They are pretty much excited at Michigan about this first professional veterinary journal published there, and celebrated its appearance with a banquet attended by some 500 students, faculty members, and veterinarians, at which Dr. R. A. McIntosh of the Ontario Veterinary College delivered the main address and Drs. Herman Dykema and E. C. W. Schubel also spoke. . . . Those responsible for the publication deserve credit for the attractive appearance and interesting contents of the first issue. One of the features, which is to be continued, is a veterinary "Roll of Honor" on which is to be inscribed the names of alumni or friends of Michigan State College who have won distinction for themselves and the college. The first name on the roll is that of Dean Ward Giltner.

■

Bacteria vary in strength according to the stages of their life cycle, according to Dr. Harvey C. Rentschler, director of research for the Westinghouse Lamp Division, who presented a report based on a special two-year study of bactericidal action of ultraviolet radiation, before the American Association for the Advancement of Science at Philadelphia, January 1st.

During a bacterium's weakest moments, it is from eight to 10 times weaker than during the healthiest period of its life. In working with an ordinary culture of *E. coli*, Dr. Rentschler said, the lethal ultraviolet radiation for different individual bacteria in the same stage of their life cycle was found to differ by as much as threefold. It is thus indicated that the deadliness of bactericidal agents is not only dependent upon the family of bacteria being killed, but also whether or not the bacteria are young, middle-aged, or decrepit, as well as upon the strain of the organism.

Dr. Rentschler's research also demonstrates that bacteria may be injured by a sub-lethal dose of radiation. This tends to disprove the generally accepted "single photon hit" theory for destroying bacteria, according to which bacteria are either killed or escape unscathed when subjected to lethal radiations.—*Westinghouse Editorial Service.*

"The ducks have a word for it, Mister!"

■

Lederle Laboratories, Inc., have announced the death on December 23rd of Creighton M. Hutchins, Director of Veterinary Sales. Mr. Hutchins had been associated with Lederle Laboratories for more than 25 years.

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Doctor Hirleman Honored at Dinner

Forty-two veterinarians, wives and friends attended a dinner November 30th at Hallowell, Mass., in honor of Dr. A. L. Hirleman, who has retired after 45 years with the Bureau of Animal Industry, U. S. Department of Agriculture. Dr. P. R. Baird, toastmaster for the occasion, aptly expressed the feeling of the group when he stated, "We meet here not as veterinarians, not as a veterinary association, or as officials and office employees, but simply as Doctor Hirleman's friends," Mr. H. M. Tucker and Dr. Myron Maddocks, the oldest practitioner present, also spoke. At the close of the dinner and entertainment Dr. and Mrs. Hirleman were presented with appropriate gifts.

Dr. and Mrs. Hirleman will make their home in Atlanta, Ga.

■

The Toronto Humane Society's calendar for 1941 is as usual a distinctive one. This year the excellent photographic reproductions on each page are based on the theme "Animals in War," and depict dogs engaged in different phases of war service and the mascots of various regiments. The ornamental border of the pictures has been changed to include the British and Canadian flags. In spite of the militaristic theme, the pictures are as always full of human-and-animal interest.

■

Another outstanding calendar is that of the Corn States Serum Company, featuring a beautiful reproduction of a painting of a full-blooded Irish setter with 15 puppies—Dawn's Tally O'Dare with her litter of eight males and seven females, whelped May 13, 1939. . . . We blinked when we saw the picture; that seemed like a lot of puppies, but data accompanying the calendar assured us of the authenticity of the occurrence. . . . We were therefore somewhat prepared for the newspaper clipping which arrived in the afternoon mail, all about the 16 Irish setter puppies brought into the world recently with the assistance of Dr. Charles J. Gruber of Fort Wayne. The newspicture showed Patsy, the proud mother, looking very blasé about the whole thing as her 16 healthy offspring sprawled in various abandoned attitudes about her.

■

The Fort Dodge Laboratories' holiday offering was an attractively-mounted etching of handsome scottie Ch. Silver Tip of Gedling. . . . Jensen-Salsbery Laboratories as usual sent their season's greetings with a handy memorandum book and pencil.

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Army Veterinary Corps

Transfers.—Col. Jean R. Underwood, from Headquarters, Eighth Corps Area, Ft. Sam Houston, Texas, to Philippine Department, Jan. 24; Lt. Col. James E. Noonan, from Ft. Belvoir, Va., to Headquarters, Sixth Corps Area, Chicago, Ill., Dec. 10; Lt. Col. Josiah W. Worthington, from Fort George G. Meade, Md., to Philippine Department, Jan. 4; Lt. Col. Clifford E. Pickering, from Philippine Department to Ft. Benning, Ga.; Lt. Col. Daniel H. Mallan, from Langley Field, Va., to Medical Department Replacement Center, Camp Lee, Va., and to additional duty as post veterinarian, Camp Lee, Feb. 15; Lt. Col. Oness H. Dixon Jr., from Ft. Monroe, Va., and additional duty as attending veterinarian, Nansemond Ordnance Depot, to Medical Department Replacement Center, Camp Grant, Ill., and to additional duty as post veterinarian, Camp Grant, Feb. 15; Lt. Col. Frank M. Lee, from Jefferson Barracks, Mo., and additional duty in the office of the Quartermaster, St. Louis, Mo., to Kansas City Quartermaster Depot, Kansas City, Mo., Dec. 28; Maj. Verne C. Hill, from Philippine Department to S. C. Remount Area Headquarters, San Angelo, Tex.; Maj. John R. Ludwigs, from San Antonio General Depot, Ft. Sam Houston, Tex., to San Antonio General Depot branch, Fort Worth, Tex.; Maj. Harry R. Leighton, from Fort Williams, Maine, to Philippine Department, April 2; Capt. Curtis W. Betzold, from Philippine Department to Ft. Bliss, Tex.; Capt. Stephen G. Asbill, from Ft. Bliss, Tex., to 4th Medical Supply Depot, Ft. Sam Houston, Tex.; Capt. John K. Allen, from Fort Myer, Va., to the 3rd Cavalry, Fort Myer, Va.

Veterinary Corps Reserve

Promotions.—To Captain, Merrill L. Steele, December 30; to 1st Lieutenant, Rolland O. Scott, December 28.

Transfers.—1st Lt. Emer A. Maier, from San Antonio General Depot, Ft. Sam Houston, Tex., to San Antonio General Depot branch, Fort Worth, Tex.; 1st Lt. William S. Gochenour Jr., from Selfridge Field, Mich., to Philippine Department, Jan. 4; 1st Lt. Benjamin D. Blood, from North Central Remount Area, Kansas City, Mo., to Savannah Air Base, Savannah, Ga., following completion of temporary duty at the Chicago Quartermaster Depot; 1st Lt. Henry J. Lindenstruth, from Fort Snelling, Minn., to San Francisco Port of Embarkation, Fort Mason, Calif.

Ordered to Active Duty.—Capt. Duane L. Cady, to Fort Snelling, Minn.; 1st Lts. Ervin A. Eichhorn, to Army Medical Center, Washington, D. C.; Charles R. Wainwright, to Brooks Field, Tex.; Wm. F. Hoffman, to Camp Lee, Va.; Everett B. Miller, to Ft. Belvoir, Va.

Meat Inspection Course.—The following officers, now on active duty, are ordered to report at the Chicago Quartermaster Depot Jan. 6, 1941, for a 30-day course of instruction in the inspection of meat, meat-food, and dairy products: Maj. Robert S. MacKellar Jr., 102nd Medical Regiment, Ft. McClellan, Ala.; Capt. Leo L. Lieberman, Ft. H. G. Wright, N. Y.; Capt. Charles P. Hesse, Fort Knox, Ky.; 1st Lts. Benjamin D. Blood, Savannah Air Base, Savannah, Ga.; Wm. F. Hoffman, Camp Lee, Va.; Ernest Wm. Rivers, Camp Edwards, Mass.; Everett B. Miller, Ft. Belvoir, Va.; Samuel J. Levine, Ft. Banks, Mass.; Ralph C. Fish Jr., Camp Upton, N. Y.; Thomas Lawrence, Fort Jay, N. Y.; Wm. C. Todd Jr., Madison Barracks, N. Y.; Wm. J. Sherwood, Camp Shelby, Miss.; Clyde R. Moses, Camp Beauregard, La.; Sol. G. Stephan,

Hey "Doc"! what cha doin' "down" there with THAT?
Doc who has been rudely awakened from a pleasant sweet—
Aw! Take it' damn' thing down 'n th' river an' SHOOT IT

"A Strenuous Day at the Barn"

A REMINISCENCE OF 1918

This cartoon, drawn by an enlisted member of the Veterinary Corps at the Medical Officers' Training Camp, Fort Riley, Kansas, depicts the Camp Veterinarian rushing through his duties for the day

Fort Knox, Ky.; Harry G. Geyer, Hq., 5th Corps Area, Columbus, O.; Grant F. Cottrell, Ft. Snelling, Minn.; Alton M. Coddington, Ft. Des Moines, Ia.; Frank H. Olvey, Ft. Huachuca, Ariz.; Wm. E. Draus, Ft. Clark, Tex.; Hilding M. Marlowe, Presidio of Monterey, Calif.; Edward H. Von Glan, Fort Lewis, Washington.

■

Illinois Veterinarians Subpoenaed

Drastic measures are being taken in Illinois to insure a good attendance at the annual meeting of the state association. Members of the association have been served with subpoenas, complete with gold seal, summoning them "personally to appear with your lady before the Banquet Session of the Illinois State Veterinary Medical Association at the Leland Hotel, City of Springfield, State of Illinois, on the 23rd day of January, 1941, A. D., at 6:30 P. M., then and there to give evidence of your true Professional Spirit in a certain cause to be tried between QUEEN OF MIRTH, Plaintiff vs. GLOOM, Defendant. . . ."

■

Business of Taking a Bow

Now many of the newspapers, magazines and radio networks which rushed to the front in broadcasting news about a scheme to bring British dogs to America wish they had taken the time to check on the proposed plan, for American dog fanciers are not going to get free dogs from England and these organs have been busy issuing denials of any organized effort to import British refugee dogs and give them homes here.

When nation-wide publicity was being given to the scheme, the *American Field* was one of the few publications which refrained from climbing aboard the bandwagon of "British dogs free to Americans who will give them good homes." Sportsfolk intrigued by the publicity given elsewhere wrote to us for details, but because our editorial staff had been unable to confirm through reliable sources the authenticity of plans for evacuating English dogs, inquirers were told that there was no real basis for any comprehensive plan for evacuation of the dogs of Great Britain. The impracticability of the visionary project given widest publicity had been immediately apparent to those who used common sense in considering the program outlined, and this precluded these columns being used to carry the rumors flooding the country.

Accuracy is a canon of good news reporting and although a few may have thought we were being scooped by less careful purveyors of news, the wisdom of endeavoring to sift crackbrained schemes and subtle propaganda has been proved once again.—*American Field*

Ditto.—VETERINARY MEDICINE.

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LITERATURE UPON REQUEST

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Coming Meetings

District of Columbia Veterinary Medical Association, Mayflower Hotel, Washington, D. C., January 21.

South Carolina Association of Veterinarians, Wade Hampton Hotel, Columbia, S. C., January 21.

Illinois State Veterinary Medical Association, Leland Hotel, Springfield, Ill., January 23-24.

Iowa Veterinary Medical Association, Hotel Fort Des Moines, Des Moines, Ia., January 28-30.

North Carolina Short Course for Veterinarians, Raleigh, N. C., January 28-31.

Kentucky Veterinary Medical Association, Lexington, Ky., January 29-30.

Ontario Veterinary Association, Royal York Hotel, Toronto, Ont., January 30-31.

Michigan State College Post-Graduate Conference for Veterinarians, Michigan State College, East Lansing, Mich., January 27-February 1.

Missouri Short Course for Graduate Veterinarians, Columbia, Mo., February 11-13.

Alabama Veterinary Medical Association, Alabama Polytechnic Institute, Auburn, Ala., February 11.

Alabama Polytechnic Institute 17th Annual Conference for Graduate Veterinarians, Auburn, Ala., February 12, 13, 14.

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Deaths of Veterinarians

Otto Lebreckt Hohlfeld, 64, Grants Pass, Ore., San Francisco Veterinary College '17, practiced and farmed in the Tillamook area for 20 years, August 4.

R. L. Mayberry, 61, Uniontown, Ky., August 11.

J. G. Sallade, 71, Asheville, N. C., Ontario Veterinary College '94, practiced in Pennsylvania 25 years, coming to Asheville in 1924, August 27.

I. E. Woodard, Natchitoches, La., Arkansas Veterinary College '20, World War veteran, August 27.

Horace H. Collins, 69, Reading, Pa., Ontario Veterinary College '92, inspector for the Reading Bureau of Health for 18 years, October 26.

Harvey E. Punchard, Lakewood, Colo., Kansas City Veterinary College '16, October 26. Doctor Punchard had been a breeder of pedigreed dogs for several years, and was in demand as a judge in shows in all parts of the country.

Ernest L. Simpson, 57, Westfield, Pa., New York State Veterinary College '10, practiced at Westfield for 30 years, a member of the Westfield School Board for many years. October 27.

Thomas Packwood, 77, Brown City, Mich., Ontario Veterinary College '93, practiced at Brown City 47 years, October 27.

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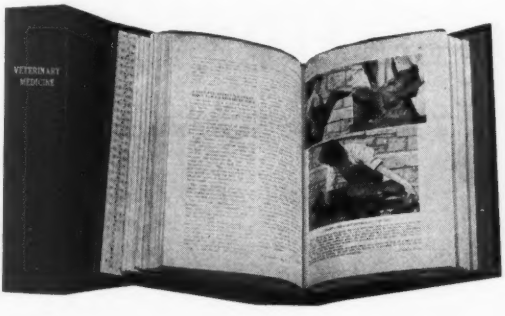

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G. L. Mackey, 51, Bedford, Va., Chicago Veterinary College '15, November 10.

Everts Febelon Jarrel, 65, Tyler, Tex., Chicago Veterinary College '08, served in the hospital corps during the Spanish-American War, entered the B. A. I. in 1912, president of the Southwestern Veterinary College for four years, state veterinarian of Texas under two governors, practiced in Tyler for 21 years, November 17.

Samuel Gibson, Detroit, Mich., formerly of Cleveland, O., extensive race horse practice, November 20.

Morton S. Whitcomb, 75, St. Paul, Minn., Chicago Veterinary College '93, in general practice in Minnesota until 1904, when he was appointed field veterinarian for the Minnesota State Live Stock Sanitary Board, of which he served as secretary and executive officer 1907-08. He retired from active service in 1931, and had been in failing health for some time prior to his death November 30.

N. R. Allen, 55, Perry, Iowa, Iowa State College '15, practiced in Perry for over 20 years, active in civic matters, an invalid for the last several years, December 1.

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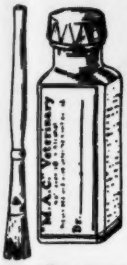

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MONTREAL

Robert Turnbull, 69, Danville, Ill., Ontario Veterinary College, in the B. A. I. service for 31 years until retiring about eight years ago. Despondent over ill health, Doctor Turnbull took his own life December 6.

F. J. Stanee, 58, Sterling, Ill., state bovine tuberculosis inspector for 14 years, December 7.

Earl P. Maxwell, 51, Columbus, O., Ohio State University '15, December 13. Doctor Maxwell, who was president and treasurer of the Columbus Serum Co., was known nationally for his football officiating, in which he was active from the time of his graduation until three years ago. He officiated at outstanding games in all sections of the country, and had many friends among leading men and coaches in the football world.

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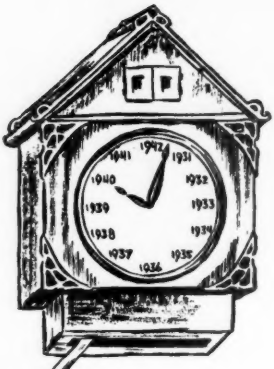
Dr. John R. Mohler, chief of the U.S.B.A.I., recommends calfhood vaccination in Bang's Disease control. His plan is endorsed by the U. S. Live Stock Sanitary Association (see story in January issue of **Veterinary Medicine**, pp. 20-21; 24).



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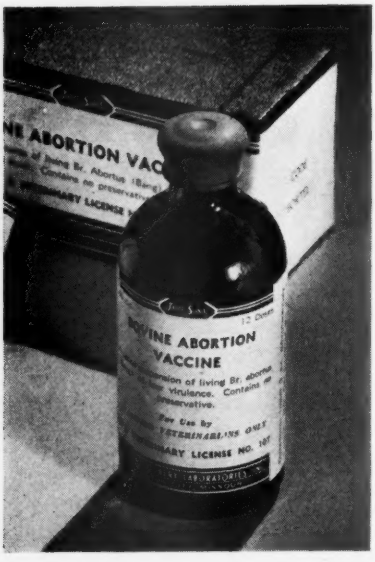

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